PRE-MED *student guide*

2020

7th edition

RICE UNIVERSITY

Publishing Information

The views and opinions expressed in this book are strictly those of the contributing authors. The contents of this publication have not been reviewed or approved by Rice University. The Premedical Student Guide is a student-run project and unaffiliated with Rice University. The Premedical Student Guide was first published in the 2006-2007 academic year in Houston, Texas. Brian Schwab initially created the project, but many other writers (primarily those from the Will Rice class of 2007) were essential contributors. After several updates, the project also owes much of its content to the Rice University Class of 2012. This project was revived and the book revised by the Rice Pre-Medical Society 2020-2021 board. If you would like to request further copies of this text in physical or electronic form, please email rpms@rice.edu. Thank you for reading and good luck.

To the mentors who give everything they have without thoughts of receiving.

Acknowledgments

We created this book with the help of many students from Rice University. We deeply appreciate the generosity of the contributing applicants and medical school students who have by now assuredly become successful residents and doctors. Several nonmedical people were essential, as well, and we are thankful for their invaluable assistance. What follows is a list of contributors and the year they began helping with the project (in chronological order):

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Foreword

Applying to medical school is a long, difficult process. Some students already knew that they wanted to be doctors even before coming to Orientation Week. Others jump from Chemical Engineering to Asian Studies in a winding path of self-discovery that eventually leads to a passion for medicine. Some students have already been accepted to medical school while they were still in high school (e.g. Rice-Baylor). Whatever your case may be, getting into medical school could at first seem complicated, hard, or even futile. Even if you know what to do, the incredible magnitude of required work might deter some from even trying. Just remember, though, that it's worth it.

My personal journey towards medical school started when I sat down at a table in Baker College during O-Week and studied a brochure outlining the pre-med timetable for my four years at Rice. Scared, I wondered whether I would ever be able to manage the seemingly busy and strict schedule of things to do. Nevertheless, with joy, I can say that I have persisted, worked my way through the arduous process, and been accepted to medical school. I am quite thankful for the people that have helped me. Upperclassmen, friends, family, advisors, and others have helped me more than I could have ever imagined. I wish to dedicate this book to these amazing people, with a special thanks to Ted John (WRC '06, University of Michigan). The tremendous help that I received from countless individuals was the impetus for my attempt at assisting other premeds in their paths toward medical school.

I began writing a book for Rice pre-meds in December of 2006. Really, the idea just randomly popped into my head. I was hoping to give back to the community that had helped me so much during my personal path towards medical school, and I believed (and still believe) that the best help available is from your network of older peers. Therefore, I started writing a book, asking friends for help, and contacting medical school students for further input. The purpose of this book is to help Rice pre-medical students get into the best possible medical schools that they can. The main authors are a number of pre-meds in the Will Rice class of 2007, and we have provided contact information if you have further questions. I trust that your medical career, Including your application to medical school, will yield great success. Don't get scared; get prepared.

Best of Luck,
Brian Schwab
Project Founder (WRC '07, Duke Medical School)

Note for the 7th Edition

Since the initial guide was written, a lot has changed about the application process to medical schools - and a lot has stayed the same. We dug up this guide from the recesses of Reddit and brought it up at a Pre-Medical Society board meeting, intending to try to remove some of the informational barriers that prevent medical school from being fully accessible to everyone, both Rice students and others (though it's still tailored to the Rice experience).

We certainly didn't expect that our world would shut down with the COVID-19 pandemic, and all of the difficulties that have made applying to medical school more arduous as a result. As we have all realized, university will not be the same for a number of years - nor will formal advising, or informal advice passed down from upperclassmen, and we hope that this document will help all of those who are lost in the process to have a guide.

Like everyone applying in the application year 2020, this process has been a ride - MCATs have been modified and rescheduled, interviews moved online through various softwares, transcripts and letters delayed. There is so much information that I have learned in the process of these last three years (and especially these last three months) - and I hope that your application cycle is less hectic than mine, but know that all of the questions I had will be answered here.

Most importantly, none of us could have gotten here without support - from the other board members in the Pre-Medical Society for taking on a massive project in the middle of a hectic summer, to my friends for letting me bounce ideas off of them, to the advisors and professors at Rice who have supported us in all stages of this project, and most of all, to my family, for always being there. We'd also like to thank Dr. Brian Schwab, who wrote the first version of this guide, for his permission and support through this endeavor.

Medical school is important, and it's a difficult path to take (though they tell us that residency and practice are much more so, and I believe them!). But please know that you have support, and we hope to empower you with this information so that medical school is accessible to all, not just those who know the right people and the right information. Please feel free to reach out to those who have provided contact information for questions, mentorship, or advice.

Best of luck in your own application cycle,
Vi Burgess (Brown '21)

The Overall Premed Timeline

Freshman

Join Rice Pre-Medical Society (RPMS)

They have resources for shadowing, volunteering, information panels, and lots of opportunities to meet and network with physicians and medical students in Houston

Visit the Center for Career Development (CCD)

RICE UNIVERSITY Center for Career Development

Go to the CCD for advice on networking, approaching professors and potential PIs, resume development, etc.

Think about a course of study and major

Visit the Office of Academic Advising (OAA)

RICE | OAA Office of Academic Advising

Attend one of the information sessions for freshman led by the OAA. You can also schedule an appointment with one of the OAA Advisors to talk about classes and scheduling.

Visit Rice Student Volunteer Program!

Visit RSVP to identify volunteer programs of interest or find another service-oriented club (Music MDs, Patient Discharge Initiative (PDI), Camp Kesem, etc.

Join extracurriculars and clubs!

Join ones that genuinely interest you, not just things that will look good on an application. Use this time to explore!
Also, apply for leadership positions for sophomore year!

Identify and contact a physician mentor in your field of interest

Look up pre-requisite courses for medical schools you are interested in. Find out AP credit policies

Identify summer programs/job opportunities. Apply over Winter Break.

Think about studying abroad

RICE Study Abroad

Summers and during Junior or Senior year are popular times to study abroad, but schedule an appointment with the study abroad office to look at your options.

Make arrangements to conduct research during the next academic year.

Sophomore

Continue Rice Pre-Medical Society (RPMS)

Continue to take advantage of the information and networking opportunities provided by the Rice Pre-Medical Society

Get to know your professors really well. Do well in your classes!

Declare a major. Plan the intellectual focus of your curriculum.

Visit the Office of Academic Advising (OAA)

RICE | OAA Office of Academic Advising

Attend one of the information sessions for sophomores led by the OAA. You can also schedule an appointment with one of the OAA Advisors to talk about classes and scheduling.

Continue your extracurriculars and leadership opportunities! Use this time to really grow as a person!

Think about studying abroad

RICE Study Abroad

Summers and during Junior or Senior year are popular times to study abroad, but schedule an appointment with the study abroad office to look at your options.

Identify summer programs/job opportunities that support your career interests. Apply over Winter Break.

Begin preparation for standardized tests

Look for resources from Kaplan, Examcrcakers, Princeton, etc.
Register if you think you're ready!

Continue volunteer work and research. Get involved in some clinical experience! Shadow, or get a medical-related job!

Junior

Continue Rice Pre-Medical Society (RPMS)

Sign up for a mock interview with RPMS

Continue to shadow, research, volunteer, pursue leadership opportunities, participate in extracurriculars.

Check Medical/Dental/Vet School admission requirements again. Research institutions of interest and generate list of schools for application

Visit the Office of Academic Advising (OAA)

RICE | OAA Office of Academic Advising

- Check the OAA website for dates of junior information sessions. These are the Open File sessions and usually take place in November. Submit all Open File Materials in Box Account by end of January
- Make appointment for informational Health Professions Advising Interview
- Submit a draft of your personal statement and CV to the Health Professions Office before January 15
  - Visit the Center for Academic and Professional Communication (CAPC) in Fondren for help writing your personal statement and for editing
- For specific questions, visit a Health Professions Advisor

Request letters of recommendation by end of January

Begin completion of web-based common applications to professional schools (AMCAS, TMDSAS, AACOMAS, SOPHAS

Submit your applications in May (TMSAS) and June (AMCAS) These applications are rolling, so submitting early gets you a better chance at interviews and a better chance at admissions

Submit secondaries within two weeks of receiving prompts, if applicable

Think about studying abroad

RICE Study Abroad

Summers and during Junior or Senior year are popular times to study abroad, but schedule an appointment with the study abroad office to look at your options.

Have a back-up plan

Senior

Finish all pre-med/dental/vet requirements that remain

Finish degree and major requirements.

Fall is interview season - be prepared to travel, have to miss some classes.

Research the programs at individual institutions before your interview!

Visit the Office of Academic Advising (OAA)

RICE | OAA Office of Academic Advising

Complete the exit survery for Health Professions Advising and inform the OAA of where you are accepted.

Graduation!

Getting Started: Outside Resources

The best resources to help you understand the application process are the students who have done it before you. Each residential college is equipped with Peer Academic Advisors who have been specially trained to help you through your pre-med experience at Rice. The Office of Academic Advising also has a Health Professions Committee with advisors who are incredibly helpful and knowledgeable about the application process, so we highly recommend scheduling an appointment with them if you have questions! They'll support you in the actual application process. Additional resources follow:

Websites

- Student Doctor Network
    - Student Doctor Network aims to build a diverse doctor workforce by providing free advising resources such as interview feedback, study schedules, application assistance, cost calculator, and essay workshops.
    - This site is useful in terms of seeing what schools people have applied to and understanding the timeline for each. Getting thoughts about schools is a great thing to take out of this site. Each school's secondary prompts are usually posted here, too.
    - Find information and student comments/experiences about interviews, including questions they were asked
    - This is the internet! Be cautious with putting your own information out there, and be aware that this is a select group of people and do not represent most applicants, so don't judge yourself off of this.
    - Get actual application advice from the OAA, not from the internet. Myths get perpetuated here.
- Reddit: Premed & MCAT
    - These are forums that are very similar to SDN. Same cautions as above - this is the internet, don't use these as a representative sample of all pre-meds.
    - This site can be useful for commentary on the application process as a whole, and they do some school-specific thoughts.
    - The MCAT subreddit is a great resource to ask questions about practice problems, get advice from previous test takers, and find resources like review sheets or anki decks
- Medical School Admission Requirements (MSAR)
    - MSAR has the admissions requirements and details for every school in the nation. It is good for just researching individual schools and seeing average MCAT/GPAs, among other things.

- This is a resource from the AAMC, so it's also the most legitimate data you can find anywhere.
- It costs $28 for a year of access.

Staying Organized

Staying organized throughout the process is critical. There are many ways to do this, but several students choose to create an Excel document with usernames, passwords, application fees, and deadlines to ensure no school accidentally falls through the cracks.

Getting Into Medical School: The Pre-Medical Years

“What are med schools looking for? How can I get into medical school?” Great questions. In a sense, applying to medical school is analogous (or perhaps homologous?) to applying to college. You will be evaluated on your GPA, activities, experiences, test scores, and interviewing ability.

In high school, you were judged on your GPA. Same thing applies here. In high school, it was the SAT/ACT. Now, it is the MCAT. Before, you included a mix of extracurricular activities. Same thing for med school. This section describes how to become a competitive applicant for medical school. It is provided by the Student Doctor Network Wiki under the Creative Commons Licensing Agreement, but numerous additions and edits have been made.

Becoming a Competitive Applicant

To get into a medical school of your choice, you will naturally have to be a competitive applicant when compared to everyone else. The sections that follow are typically understood to be quite important:

- GPA, cumulative and science GPA (aka BCMP: biology, chemistry, math, physics)
- MCAT
- Letters of Evaluation
- Research
- Volunteering (healthcare and non-healthcare)
- Clinical Experience
- Leadership
- Other Extracurriculars

GPA: from MSAR 2020

Realize that your GPA is not directly proportional to the strength of medical school to which you will necessarily be accepted. Obviously, you will need a decently high GPA, but it’s not like a 3.89 has an incredible advantage over a 3.85. MSAR is a good reference to see what the average GPA medians and GPA ranges are for matriculated students. Here is a random sampling:

- Baylor’s accepted student GPA is 3.92
- UT Houston (McGovern) is a 3.88
- UT San Antonio (Long) is 3.74
- UT Southwestern is 3.89
- NYU (Grossman) is 3.96

- Johns Hopkins 3.95
- UCLA 3.85
- and Harvard is 3.94

We have a larger spreadsheet with updated MCAT/GPA linked here.

First, note that the application procedure separates biology, chemistry, physics, and math GPAs from overall GPA. It's kind of interesting what counts as "science" GPA, and you have some control over which is which. One thing for all Rice students to note: an A+ is not considered a 4.3, but rather a 4.0. See the "AMCAS / TMDSAS" section for more details. While AMCAS does keep your +/-, TMDSAS does not. This is only relevant for people who matriculated before 2018 at Rice.

GPA Calculator - for AMCAS, TMDSAS, and AACOMAS
Course Classifications - AMCAS
Course Classifications - TMDSAS
Course Classifications - AACOMAS

Second, note that medical schools would rather see a steady increase in GPA over semesters (i.e., 3.2, 3.4, 3.6, etc.) than a steady decline (i.e., 3.6, 3.4, 3.2, etc.). The former scenario shows that you are serious about your studies. The latter demonstrates that either the upper-division courses are too difficult for you, or that you are getting too involved with your extracurricular activities as time goes on.

The MCAT

The MCAT is the exam that may be one of the more significant factors as to whether or not you get a second look from an admissions committee. It is offered by the Association of American Medical Colleges (AAMC), the same organization that controls the application process. To register for the exam, you must use the AAMC's website. For further information, please see the "MCAT" section later in this book.

What is Competitive?

The AAMC published a guide to the MCAT which shows how it is incorporated in admissions decisions on page 15. You can also see admissions percentages based on GPA/MCAT on page 16.

An unofficial way that you can also evaluate the strength of your MCAT and GPA is the LizzyM score.

This system, while very crude, is a good indication of what statistics the schools are looking for when they initially glance at your application. Using your LizzyM Score, the following table gives

you an idea of what might be a competitive tier. The competitive tiers give your relative strength in the applicant pool. Tier 1 indicates that your GPA and MCAT will be strongly competitive, and Tier 5 indicates that your GPA and MCAT will be less competitive.

70–85: Tier 1
65–70: Tier 2
60–65: Tiers 3, 4
55–60: Tier 5

This table gives a rough idea of how your statistics match different schools and the typical matriculants of those schools. However, it's important to know that there are certainly many people who get accepted to higher tiered schools than expected every year, just as there are people who get rejected from lower tiered schools than would be expected from their competitive scores. Statistics are just one part of the holistic review process that many schools employ, and the LizzyM score can't take into account your personal statement, extracurriculars, volunteer hours, etc. However, this method is by far the quickest indicator available to get a sense of how you stand in a purely statistical sense.

Another scoring system, the Applicant Rating System (ARS), takes into account more factors than the LizzyM score:

1. GPA
2. MCAT
3. Research
4. Clinical Experience
5. Shadowing
6. Volunteering
7. Leadership and Teaching
8. Miscellaneous
9. Undergraduate School
10. Representation in Medicine
11. GPA Trend

While the ARS will **not** assess where the applicant will be accepted, it instead assesses the schools the applicant should generally apply to in order to maximize the probability of acceptances. The ARS score is then translated into tiers:

S: 85
A: 80
B: 75
C: 68
D: 60
E: 0

Each school is then grouped into different categories by selectivity, with Category 1 being the most selective. S and A level applicants should in theory apply to more Category 1 and 2 schools while C to E level applicants should apply to more Category 4-7 schools. Keep in mind that this is not an official system, and it can't take into account your own personal story - don't let this keep you from applying to your dream schools. It's just one way to know what some benchmarks are.

It's also good to note here that different people have different statistical goals here for medical school. While some are aiming for Harvard and are really looking for that 4.0/528 combination, it's also normal to want to make your goals different. That doesn't mean you should do poorly, but don't feel pressured to get a 520+ if your school list has an average MCAT of say, 514. Do your research first, and then make your personal goals. **Applications to medical school also take far more into account than just your numbers.**

General Matriculant Statistics

Note: these stats are for matriculants, or those people who are actually entering the medical school class. Stats for applicants tend to be lower, and stats for acceptances tend to be higher. Source: AAMC's 2019 FACTS, TMDSAS Applicant & Matriculant Statistics

All schools:
Overall GPA: 3.73 ± 0.24
BCPM GPA: 3.66 ± 0.30
MCAT overall: 511.5
Chem/Phys: 127.8 ± 2.2
CARS (reading): 127.1 ± 2.3
Bio/Biochem: 128.1 ± 2.1
Psych/Soci: 128.5 ± 2.0

TMDSAS Schools:
Overall GPA: 3.80
BCPM GPA: 3.73
MCAT overall: 510.8
Chem/Phys: 127.6
CARS (reading): 126.9
Bio/Biochem: 127.9
Psych/Soci: 128.4

Age of average applicant at matriculation = 24
Applicants overall = 53,371
Matriculants into medical school = 21,869
Texas applicants: 6,053

Texas matriculants: 1,622

Based on data from aamc.org for 2017-2018 through 2019-2020, the medical school acceptance rate is 26.5% for applicants with an MCAT score between 502 and 505 and a GPA between 3.40 and 3.59. Overall, the acceptance rate for applicants with a cumulative GPA above a 3.60 is around or over 50%, and the acceptance rate for applicants with an MCAT score of over 506 is also around or over 50%. If we consider “competitive” as an acceptance rate over 50%, then generally a GPA over 3.60 and an MCAT score over 506 would make an applicant competitive. Again, keep in mind that applications are much more than just numbers - but these are some rough benchmarks.

Grades and Standardized Test Scores - Rice University

Admitted Rice Applicants - Mean Cumulative GPA and MCAT Scores

CALENDAR YEAR	GPA	MCAT
2016	3.71	509
2017	3.77	514
2018	3.79	515
2019	3.80	516

What to Pick as a Major

A common source of anxiety for many entering freshmen is picking the right major. While many premeds are in chemistry or biology-related fields, bear in mind that your major really does not matter. Most people go into these areas because the premed requirements make up the required courses for microbiology and biochemistry. However, at Rice the Biochemistry & Cell Biology minor covers the majority of these requirements (except for statistics), leaving you room to major in something non-science-related. Also, applicants try to impress admissions committees with difficult or medically-oriented majors such as biotechnology or health professions. The AAMC publishes statistics every year about the majors with the highest acceptance rates and highest MCAT scores (visit www.aamc.org). As of this writing, while most medical students did chemistry and biology as their undergraduate majors, these were not the fields with the highest acceptance rates. As of 2019, the majors with the highest average MCAT scores among both applicants and matriculants are within math and statistics, with an average total MCAT score of 510.5 and 514.8, respectively. The majors with the highest acceptance rates are within the physical sciences, with an acceptance rate of 47.7%. Average MCAT scores for matriculants and acceptance rates by major are listed as follows:
Source: AAMC’s 2019 FACTS

Biological Sciences
MCAT Chem/Phys: 127.7
MCAT CARS (reading): 126.9
MCAT Bio/Biochem: 128.2
MCAT Psych/Soci: 128.5
Overall: 511.3
Acceptance Rate: 40.67%

Humanities
MCAT Chem/Phys: 127.8
MCAT CARS (reading): 128.1
MCAT Bio/Biochem: 128.1
MCAT Psych/Soci: 128.9
Overall: 512.9
Acceptance Rate: 46.48%

Math and Statistics
MCAT Chem/Phys: 128.9
MCAT CARS (reading): 128.0
MCAT Bio/Biochem: 128.8
MCAT Psych/Soci: 129.0
Overall: 514.8
Acceptance Rate: 47.38%

Other
MCAT Chem/Phys: 127.6
MCAT CARS (reading): 127.0
MCAT Bio/Biochem: 127.8
MCAT Psych/Soci: 128.5
Overall: 511.0
Acceptance Rate: 38.50%

Physical Sciences
MCAT Chem/Phys: 128.7
MCAT CARS (reading): 127.5
MCAT Bio/Biochem: 128.3
MCAT Psych/Soci: 128.6
Overall: 513.1
Acceptance Rate: 47.70%

Social Sciences
MCAT Chem/Phys: 127.6
MCAT CARS (reading): 127.4

MCAT Bio/Biochem: 127.8
MCAT Psych/Soci: 129.0
Overall: 511.7
Acceptance Rate: 39.89%

Specialized Health Sciences
MCAT Chem/Phys: 127.4
MCAT CARS (reading): 126.8
MCAT Bio/Biochem: 127.6
MCAT Psych/Soci: 128.3
Overall: 510.1
Acceptance Rate: 36.71%

The take home message is that your major really does not matter - there's not a lot of variation between acceptance rates between fields. Pick something that you enjoy. Any unique background will give you a different perspective to practicing as a physician. While you should major in whatever interests you, just keep in mind that you should have a backup plan should you not get accepted to medical school.

PERSPECTIVE: *Do you feel that majoring in a non-science related field has hindered or helped you in medical school?*

> "Going into college, I wanted to keep the arts very central to my undergrad experience. I knew I wanted to go to medical school and that college would be my best opportunity to engage fully with my other passions. I ended up double majoring in VADA: Studio Art and Policy Studies and loved it! To some friends and family, it felt like a risk to be a premed art major because there wasn't much of a blueprint for that path, unlike being a premed biology major, for instance. Additionally, there's a lot of rhetoric during the application process about being a "well-rounded" and "unique" applicant too, which pretty much translates to "do anything and everything."
>
> "Ultimately, I found during my interviews that what matters most is that you spent your time in college doing what you're truly interested in and excited about because that will inform who you are and what you care about as you embark on the next phase. There's no right way to be a premed. Whether you're most excited about biosciences or love to dive into English literature, I recommend leaning into it fully and allowing it to shape your individual perspective as a learner. I promise, anything you study can apply to medicine, which is truly both a science and an art. I've loved engaging with the intersection of art and medicine through anatomy drawing, creative reflection on patient interactions, and teaching art observation as a means to refine clinical observation. My art background developed my love of visual learning and working with my hands and fostered my excitement about anatomy and surgery. Lean into your passions, whatever they are, and let them guide you!"

- Miranda Xiao Morris (McMurtry '19, Duke University SOM)

Double Majors
Remember, your major is unimportant. Therefore, you can well imagine that a double major would be a colossal waste of time if you pursue two degrees only for the sake of impressing an admissions committee. If you are going to double major or add on a minor, you must be genuinely interested and truly passionate in both areas. Keep in mind that you can always take classes within another field that interests you without majoring in that field.

Required Courses

This section is very hard to write because each and every school is different. It is really hard to tell you all the different requirements for all the schools. As a generalization, medical schools require completion of the subjects listed, which each should be taken for a letter grade no less than a C. One important note is that you do not need to have your prerequisites done before you apply to medical school. You only need to have your prerequisites done before you matriculate into medical school.

General Medical School Requirements
- 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
- At least one semester of biochemistry
- A math requirement (calculus, statistics, etc…)
- One year of English

Rice Courses For These Requirements
- *English (aim for 6 hours)*: all FWIS classes except FWIS 100, ENGL XXX, HUMA 101, 102
- *Biology lecture + lab (aim for 12 hours lecture + 2 hours lab)*: BIOS 201/202 + 211 are standard, but most BIOS classes will count. Be careful with the more evolutionary biology/ecology classes, because those may not count.
- *Calculus (aim for 6 hours):* MATH 101/102, etc.
- *Statistics (aim for 3 hours)*: BIOE 391/439/440, EBIO 338, KINE 319, PSYC 339, SOCI 382, SOSC 302, STAT 280/305/310/312/453
- *Chemistry (aim for 8 hours of lecture + lab)*: CHEM 121/122 with 123/124 or CHEM 151/152 with 153/154
- *Organic Chemistry (aim for 8 hours of lecture + lab)*: CHEM 211/212 + 215 is standard, but these work too: CHEM 213, 214, 251, 251, 252, 320, 252, 265, 374
- *Physics (aim for 8 hours of lecture + lab)*: PHYS 101/102 or 111/112 or 125/126
- *Biochemistry (aim for 3 hours)*: BIOC 301, 302, or BIOE 330

Some medical schools will allow you to petition classes that cover the same content as any of the courses listed above but may be in a different department. For example, Rice's Bioengineering department offers cell biology and biochemistry courses that bioengineering majors can take. Each school will have different policies regarding petitioning.

There are also several common courses that medical schools recommend, but do not require.

- Psychology
- Sociology
- Genetics
- Behavioral Sciences
- Immunology
- Social Sciences
- Human Physiology and Anatomy
- Spanish

This list of recommended and required courses can vary greatly depending on which schools you are interested in, so do your own research to ensure that you have all the courses that you need!

How do I fulfill English requirements?
You can use a FWIS course (not including FWIS 100) or two actual English classes for this requirement. All these options will work. The reason why is that AMCAS has you indicate course "designations." The AMCAS instruction booklet has the following:

> "Each course must be assigned a course classification based entirely on the primary content of the course. See the listing of course classification examples below for guidance in selecting Course Classifications ...You are responsible for selecting the correct Course Classification.
>
> "Course Classifications, in addition to describing the courses you enter, are used in the calculation of your AMCAS GPA...The BCPM GPA consists of courses, which are considered to be Biology, Chemistry, Physics, and Mathematics courses. Course Classifications that are not followed by "BCPM" indicate that courses for which you choose this Course Classification will be calculated in your AO (All Other) GPA."

Some schools will allow exceptions to the English requirement by accepting courses in which a student has completed significant and extensive expository writing. For example, Baylor will allow students to use formal coursework in, for example, Philosophy, English, History, Public Policy, Religion, or Political Science for this requirement. Baylor will also let students fulfill this requirement through completion of a major research paper, an honors thesis, or a writing intensive upper division science course.

Using AP Credits for Pre-Med Requirements

A note of caution for those of you who took Advanced Placement (AP) classes in high school: While AP credits are great for getting requirements out of the way for college, some medical schools do not accept AP classes as a legitimate completion of the pre-med core courses. This is particularly true for New York schools and used to be true for California schools. **Texas *public* schools WILL accept AP credits**; if you're just applying to Texas public schools (read: all Texas schools except Baylor, UIW, TCU/UNT), you should be okay. The caveat is that these AP credits must be listed on your transcript and assigned course classifications and numbers, not just as a lump sum.

In other words, you might be required to take these classes a second time or supplement them with a year of advanced coursework. This can be challenging to figure out and should be done on a case-by-case basis. Be sure to carefully check the admissions requirements at your preferred schools to make sure that your classes meet their stipulations. If you are confused, email the admission office for the school.

The take home message is that it is tough to write this AP section because it is ambiguous for many schools. Pay close attention to this issue if you used AP credits for the required pre-med courses, for it might require researching or contacting individual schools. The Office of Academic Advising at Rice has compiled an AP credit list for medical schools (updated Summer 2019) that can be found here.

If you have a burning desire to both use your APs and still apply to these AP-hating schools, feel free to call the office of admissions. Many schools are willing to make exceptions for students - they just want students to show initiative first.

Competency-based requirements
Some schools are moving toward a system where students are not required to take specific courses. However, they are required instead to demonstrate competency in a subject, perhaps by writing a justification for each subject recommended. Boston University Medical School provides a good example of competency-based requirements and suggestions for filling those.

Research

Please see the "Research and MD/PhD" section, which was written by Diane Shao (WRC '07) and Scott Lin (Duncan '21).

Volunteering

Doctors hold many titles—researcher, teacher, philosopher—but the most important title is that of humanitarian. Physicians are expected to dedicate their whole lives to working with others. If you want to get accepted to medical school, you must show that you care about others. The only tried and true method of serving others is to take up volunteering.

Ideally, you should have both clinical and non-clinical volunteering - just make sure it's something you're passionate about and interested in. You could work with Habitat for Humanity, the Boy Scouts, or any other group that has interests similar to yours. You are not expected to save the world or commit to a thousand hours each semester. Simply find something you enjoy doing and spend one afternoon a week doing it and stay committed for a significant period of time (think at least two semesters).

Many pre-meds volunteer in hospitals thinking that they will gain some kind of clinical work experience. Many hospitals do not support their volunteers well. For example, in some hospitals, your job could consist of handing out lollipops, filing paperwork, and pushing wheelchairs. Do your research first - talk to other students about what they're doing, where they're volunteering, and if you have any special skills (like translating, an EMT/CNA certification), look for those opportunities. The general rule is that it counts as clinical volunteering if you're close enough to smell the patients.

PERSPECTIVE: Volunteering

> "Volunteering can be medically-related or have nothing to do with medicine. Many applicants tend to have done both types. I feel that it has helped me to have put a lot of time and leadership in my non-medical volunteering, principally ESL (English Second Language) tutoring, as well as volunteering in the medical field. My medically-related volunteering has mostly been interpreting (Spanish-English) in the hospital and clinical settings. In interviews I have been asked about other volunteering outside of medicine. In that case, it was nice to be able to talk about the ways I have improved the ESL Tutoring program as a coordinator and director. I believe that volunteering mainly shows that you are a compassionate person to prospective schools. There is no magic formula in how to volunteer. Go with your interests; be sure to convey your enthusiasm for helping disadvantaged members of society when you apply, and your volunteering will be a valuable asset."

– modified from Marina Post (WRC '07, Baylor College of Medicine)

Clinical Experience

One thing that will show medical schools that you are interested in becoming a doctor is if you gain some kind of experience working with patients. Most pre-meds are duped into thinking that volunteering in a hospital will give them insight into the difficulties of becoming a physician. A

more effective way to get this kind of knowledge is to shadow a doctor regularly - we suggest a minimum of 60 hours. Shadowing in more than one field if possible may be a good idea. Many physicians are willing to pass the torch by allowing undergraduates to follow them around the office as they conduct physicals and consultations. Rice has a course through the OAA (UNIV 330) that provides shadowing opportunities, or you can network at RPMS or other pre-med club events - there are typically physicians there who are very willing to help you out.

If you want to gain genuine clinical experience, you could become licensed as a nursing assistant, medical assistant, or an EMT. Under no circumstances is this necessary for entrance into medical school. This is just another option for exposure to the health profession. However, if you choose to gain clinical experience this way, you should be prepared for the question “Why medical school and not EMT/nursing assistant/medical assistant?” during interviews. Whatever you do, clinical experience is generally a straightforward way of gaining exposure to medicine and showing medical schools your interest.

As far as gaining clinical/medical experiences goes — apply for everything! Everything! Everything! It’s so hard to get any of these internships, so apply for everything! Then you can most likely at least have one or may even be able to pick and choose which ones you can do after you’ve heard back from places. Search medical school websites, go to those Rice biosciences internship fairs, ask professors for research opportunities, search hospital websites for their volunteer departments and contact individuals. If you can’t do something medical/clinical with your breaks, that’s totally fine — do something else! Study abroad or work in a non-medical field or travel and do humanitarian work, there’s plenty to do, just don’t spend your whole entire summer doing nothing but TV-watching!

Leadership

In addition to being scientists and humanitarians, doctors are expected to be community leaders. Though not absolutely required, many medical schools would like to see you take some kind of leadership role. You do not have to be president of your college or become a senator of your student government, but you are expected to take some kind of role in organizing and planning events.

Having a leadership position does not necessarily equate leadership, though. You can be a figurehead and simply continue running events like the previous people who occupied that position, or you can innovate and lead. Likewise, you don’t need to be in a leadership position to lead others and enact change. Given that you are about to be given a lot of power as a physician, schools have an obligation to find out if you know how to use power wisely. Find something that you have a passion for doing and demonstrate your leadership abilities.

Other Extracurricular Activities

At the very bottom of the list of “Becoming a Competitive Applicant” are the miscellaneous extracurricular activities that do not fit in anywhere else. Most jobs, sports and campus organizations do not matter all that much to medical schools unless you specifically played a major role and made an impact through the group. Unless you had a large role or title, the med schools do not typically notice or ask—that is unless you put it in your personal statement (see “Personal Statement” section).

Under the Work/Experience section of the application is an experience type labeled “Extracurricular/Hobbies/Avocations”. Describing your hobbies, interests, and extracurricular activities outside of medicine and academics help demonstrate your passion, diversify your application, and make you seem human. These activities can also be talking points at an interview if you really connect with your interviewer.

PERSPECTIVE: Other Extracurriculars

> “What I found out during interviews is that even though I was involved with the College Assistance Peer Program (CAPP) and Campus Crusade (CRU) at Rice for four years, not one of my 18+ interviewers asked me about these in any detail. However, I was almost always asked about the things I wrote about in my personal statement (see “Personal Statement” section for more help on this). I found it interesting that so many interviewers asked me questions regarding College President, a position I have only held for under a year, compared to zero questions about CAPP or CRU, though these have been significant commitments in my life. I think the take-home message is that an admissions committee will be more interested in things you write about in your personal statement more than your AMCAS activities.”

– Brian Schwab (WRC ’07, Duke Medical School)

Emergency Medical Services Technicians

PERSPECTIVE: REMS

> “Rice EMS (REMS) is a licensed First Responder Organization composed primarily of undergraduate volunteers who are certified EMTs and Advanced-EMTs. Our mission is dedicated to promoting campus safety with high quality, compassionate emergency medical care and community education. REMS also provides standby medical coverage for large events, teaches American Heart Association CPR and First Aid classes, and

offers Basic- and Advanced-EMT courses to undergraduates for academic credit and national certification.

“I took the Basic-EMT class my freshman year and joined REMS shortly after receiving my certification. I was immediately welcomed on board and soon discovered why so many are drawn to this organization. While the cool jackets, fancy medical equipment, and flashing emergency lights are certainly perks, my favorite thing about being in REMS is definitely the privilege we have to serve the Rice community in an impactful way. There is nothing more rewarding than bringing aid to people during their greatest time of need.

“REMS fosters personal and professional growth in its members. Developing clinical skills while working with area ambulance services, in local ERs, and here on campus are invaluable for those planning to enter the medical field. Learning to make real-time, independent patient care decisions is a rare opportunity for most undergraduates, but it gives important insight into the immense responsibilities of medical professionals. REMS also provides students significant roles in leadership, teaching, research, and service.

“Perhaps most importantly, REMS is a tight-knit group of students with a common mission. I have met some of my closest friends during my time in REMS. Our team of medical directors and vast network of alumni across the nation are engaged and committed to mentorship. Becoming a member of REMS was one of the best decisions I made as an undergraduate, and I would encourage anyone interested in joining this amazing group to reach out for more information about the certification and application process.”

– Sam Reddick (Wiess ‘21)

MCAT

The Medical College Admission Test (MCAT) has been a part of the medical school admission process for almost a century. Today, almost all US and Canadian medical schools require applicants to submit recent MCAT scores. The Association of American Medical Colleges (AAMC), in cooperation with its member U.S. medical schools, develops and administers the MCAT. The MCAT has been a fully computerized exam since January 2007.

The overall length of the test day is approximately seven and one-half hours, including breaks; however, because the exam is self-paced, and individual check-in times vary, you may finish earlier or later than other examinees. The MCAT was slightly shortened during 2020 because of the COVID-19 pandemic; some test questions from each section are eliminated and breaks are shortened, to take the total time down to just under six hours. Typically, the MCAT begins at 8 am and finishes at approximately 3:30, but start times are also adjusted and staggered for the 2020 MCAT dates due to social distancing precautions.

Sections:
Chemical and Physical Foundations of Biological Systems: 59 questions, 95 minutes

- Designed to assess chemistry and physics knowledge in the scope of biological systems. It will test organic chemistry, general chemistry, physics, as well as some integrated biology and biochemistry.

Critical Analysis and Reasoning Skills: 53 questions, 90 minutes

- Designed to test verbal reasoning and reading comprehension. The topics are wide-ranging and include literature, anthropology, sociology, psychology, and other social sciences and humanities subjects.

Biological and Biochemical Foundations of Living Systems: 59 questions, 95 minutes

- Designed to test knowledge of biology and biochemistry, but it may require some knowledge of organic and general chemistry.

Psychological, Social and Biological Foundations of Behavior: 59 questions, 95 minutes

- Designed to test psychology and sociology in the context of healthcare and the behavioral basis of health

Each of these sections contains 7 to 9 passage-based sets of questions, and approximately 10 discrete questions. For passage-based sets, each passage is about 400-600 words in length, and each set consists of 4 to 7 questions. Unlike the GRE, the exam does not get more difficult or easier based on your previous answers; you can thus go back within a section and flag questions, and answer passages out of order.

On the day of the exam, you will have the option to void your exam at the end. This means that your score will not be recorded. This is an option if you feel that you have horribly

underperformed; it is generally not recommended unless you feel your score is significantly lower than normal. Remember, medical schools will see all of your MCAT scores, so use voiding as necessary, but only if necessary. The MCAT is an expensive and time-consuming test, after all.

MCAT Scoring System

Each section of the MCAT receives a score from 118 to 132. These subsection scores are added together to get a composite score of 472 to 528. The MCAT is scaled so a score of 500 is at the 50th percentile. The average MCAT score of an applicant in 2019-2020 was 506.1; however, the average MCAT score of a matriculant the same year was 511.5, which is significantly higher.

Scores from 523-528 are in the 100th percentile. 515 is the 93rd percentile. 510 is the 82nd percentile. 505 is the 67th percentile.

Your goal MCAT score should be based on your school list. For instance, applicants to NYU or Harvard should aim to have an MCAT above 520, whereas for many Texas schools, a 510-515 would be sufficient. The Rice average for 2020 matriculants was a 517.

MCAT Registration

The MCAT is offered nearly every weekend from January through September.

The best recommendation for choosing a test date is to allow adequate preparation time. In general, you should block out three months to study. This means making a decision based on your personal schedule. You should complete the science prerequisite classes before you take the MCAT (general and organic chemistry with lab, physics with lab, biology with lab, and *especially* biochemistry). Taking psychology and sociology classes before the MCAT is recommended, but not as strictly necessary, as that information is the easiest to self-study.

It is often recommended that you take the MCAT the summer after your sophomore year so that you can study an entire summer (e.g. May through August). Do not do this if you have not finished all of your prerequisites. If you have, studying through the summer with other part-time commitments (a class, a part-time internship or research or a job) is a good plan. Many students also study through the fall and take the MCAT in early winter or spring of their junior year, which leaves time for a retake if necessary in late spring, right before applications.

Taking the MCAT the same summer you are applying to AMCAS or TMDSAS might be disadvantageous because schools typically require your MCAT scores before proceeding to secondaries and you do not want to stress about delays and because the test material might not be as fresh in your mind. You should also ensure that you do have time to retake if necessary.

The only way to register for the MCAT is online. Register well in advance - spots fill quickly in desirable locations on popular dates. You will be able to access the registration site approximately 12 weeks prior to each test date. Payment must be in the form of a credit card, and regular registration costs $320. Rescheduling test centers and dates will cost a fee based on when you change; cancellations may be a partial or no refund.

MCAT Resources

Paid Resources

- AAMC Materials
    - These materials are written by the people who make the MCAT, so they're the closest you can really get to the real thing. They can be a little expensive, but their practice tests and question banks are excellent and the most predictive of the exam itself.
    - Provide full length exams, question pack, section bank, and flashcards
- Kaplan
    - This paid resource offers taught classes, online classes, and individual books. The books are easy to read and fairly comprehensive; the online classes allow you to learn the MCAT material at your own pace and makes it much easier to study during the school year if need be.
    - You can also buy the books secondhand off of other students or at your local Half Price (you might be scrounging around for all of them - a full set is close to 10 books - but it's cheap).
    - The OAA also has resources to provide books and courses to low-income students.
    - Some of the books are also available through Fondren Library, through their online service
- Princeton Review
    - Similar to Kaplan, the Princeton review offers online courses, self-study textbooks, and classes for those who wish for help to study for the MCAT. The books are dense, but definitely comprehensive, and they will make you confident that you have learned all the material.
    - Same thing with the secondhand books, etc.
    - Third party scores tend to be deflated - when you take a Kaplan/PR course, it's in their best interest to bring your score down so that when you test, you'll meet their "score guarantee"
- Examkrackers
    - Examkrackers has the most condensed MCAT books you'll find. With some of the other test prep books, they can be as big as a textbook. Not the case with Examkrackers. Their classes are also structured differently - 2 hours of lecture, 1

hour of a practice test, and 1 hour going over the practice test. It's nice because lectures are really easy to tune out, but not so much with practice tests.

- UWorld
    - This is a paid subscription question bank site with lots of practice questions. This won't necessarily teach you the content or do actual review, but practice questions are incredibly useful in the last month or so before the test.
    - One of the best MCAT resources - very good explanations of questions and each answer choice
- Half Price Books
    - A great resource for cheap and affordable MCAT books and practice tests. They are common, so you can find the location nearest to you.
    - MCAT books may not be sold as full sets here - make sure you actually have all of the subject books

Free Resources

- Guide for Studying during the Pandemic
    - A guide created by a Rice student including tips and tricks for effectively studying during the pandemic.
- AAMC
    - In addition to paid material, the AAMC offers several free resources including a sample test which will be released in October 2020.
- Jack Westin
    - Known for its extensive collection of CARS passages, Jack Westin also hosts Khan Academy content and passages in the proper MCAT user interface
- M-Prep Portal
    - A free resource with several MCAT questions available each day to serve as a fun, laid-back way to prepare for the exam.
- Khan Academy
    - A free resource with free videos and quizzes that are helpful for clarifying difficult concepts. Does not contain a large question bank like some test prep companies, but is still very effective.
    - The MCAT course is no longer being maintained/updated and will not be available after 9/30/2021. However, their free preparation material will still be accessible through their YouTube Channel
- The Princeton Review
    - A free 14-day self-paced biology course with practice questions and study guides.
- Rice University - Office of Academic Advising (OAA)
    - JoVE MCAT Prep Resource
        - A free resource provided for all students at Rice University including educational videos focusing on chemistry and biological sciences
    - MCAT practice

        - They have a small library of MCAT books that students can checkout as they prepare to take the exam
    - Scholarships
        - The OAA occasionally secures free MCAT test preparation scholarships.
        - They solicit applications via the health professions newsletter as scholarships become available.
        - If none are available at the time of preparing for the MCAT, you can also apply for Access and Opportunity Funding.
- Houston Public Library
    - The HPL offers a few Kaplan MCAT prep books to checkout (physical and digital versions). Need to obtain a library card and find the most convenient location.
    - Similarly, you can also see if your public library back home has copies of MCAT prep books and materials that you can check out.
    - Fondren Library at Rice also has some MCAT book available through their online book lending library
- Free practice tests (1 or 2 per company)
    - Kaplan
    - The Princeton Review
    - Altius Prep
    - NextStep Free MCAT Test Bundle
    - MCAT-Prep

PERSPECTIVE: The MCAT

> "Do not underestimate the importance of this exam and your preparations for it. A high MCAT will likely get you more interviews (and earlier ones), putting you at a significant advantage in the applicant pool. At the same time, a high MCAT score is not an end-all-be-all in the admissions game: it will not save a weak application, and a lower score will not necessarily end a medical career. That said, you should prepare diligently for this exam.
>
> "The MCAT is like a comprehensive final exam of all the basic science prerequisites like biology, chemistry, physics, organic chemistry, and biochemistry. You should take it as soon as you complete these courses, and study for the exam when you don't have other courses requiring your attention (read: summer). Many Rice students take it towards the end of a low-key summer after sophomore year. This is advantageous in that a) junior year can be focused on strengthening your application, and b) allows you to retake if necessary. However, if you have not finished your prerequisites, especially biochem, DON'T take the MCAT. It saves time if you can review all the material without learning an entire course by yourself.
>
> "You need to register for your MCAT at least three months in advance (preferably on the date that registration opens) to get your preferred date and location. I know people who

literally flew to Colorado to take it - that can be avoided with a little planning and a good calendar.

“To rock the MCAT, you need to practice A LOT (and there’s no way around it). The exam is less about having an in-depth understanding and more about knowing how to take the MCAT itself. This means being familiar with AAMC style questions and format of the test, optimizing your time management, and, most importantly, developing an unshakeable self-confidence that will carry you through even the roughest of MCAT administrations on test day.

“Sufficient preparation requires ample practice materials. I was recommended the Princeton Review’s online course by a medical student. I began studying in late May and took the MCAT in mid-August. By the time I had taken the test, I had gone through all of the books, the online videos, and practice questions offered by the Princeton Review. I thought that the Princeton Review books were a bit too comprehensive because there was so much information in those books. It definitely helped me to have taken all of the prereqs beforehand, so I wasn’t learning new material. Through PR, I also got access to a bunch of full-lengths from PR and the AAMC. I know many people who chose not to take a course and just studied from online materials and/or books, and they did incredibly well. I chose a course only because it provides structure and accountability, not because there was any new material that isn’t already available. If you can study productively without a course or have friends/study buddies to keep you accountable, I would recommend it for cost reasons. IMPORTANT TO NOTE: The AAMC sells practice MCATs online, and those are the most accurate and best practice tests on the market.

“I studied about five hours a day from May to mid-July, and I took two days off each week. For the last month, I then did full days of studying (about 10 hours) and took one day off each week. I definitely focused on subjects I wasn’t strong in. Tailor your studying to your weaknesses based on how comfortable you feel with a topic and how well you do on diagnostic and practice materials. I took a diagnostic at the beginning of the summer and in the middle of the summer. These were full-length tests that I put a full day into. The three weeks before the exam, I took a full-length exam every day. Take it in the full conditions: start at 8 am, sit down for those full 7.5 hours, don’t take extra breaks, pick somewhere quiet. At this point, the MCAT is an endurance test. The week before the test (except the day before), live in testing conditions - wake up early, eat breakfast, study for those hours - because it’s really about making sure that your body can do it.

“After every exam, I looked at the scores and the breakdowns, and reviewed every single question and worked through it until I understood why I got it wrong. I found that the outside review materials from Princeton tended to deflate my scores (placed me in about the 60th percentile regularly), whereas AAMC materials placed me around the 90th percentile. My actual MCAT score was higher than that, so don’t sweat it if your outside company materials give you lower scores than you want. However, my scores

overall did go up throughout the summer because of the time and effort I put into studying. You cannot cram this exam.

“Realize that everyone has a limit of how much time can be realistically devoted to studying. Stay healthy - mentally, physically, and socially - to maximize your score on this test. Go see your friends, your family, your significant other; exercise; volunteer or get a part-time job or internship if it’s the summer, or go work on other coursework if it’s the school year. The MCAT cannot be your whole life, nor should it be. Doctors are humans, not test-taking robots, so don’t turn into one.

“Overall, I found that Rice prepared me well in terms of the material covered ahead of time. I’ve met some neurotic premeds out there who are trying to start studying years ahead of time. Don’t - you will burn out. At the end of the day, it’s a test; it’s an incredibly important test, but don’t let it become this monster in your mind.”

-*Vi Burgess (Brown ’21)*

Applying

Overview

The actual application process for medical school includes four main components. First, gathering materials (your MCAT, GPA, letters of recommendation, and experiences). Second, completing primary applications through AMCAS, which is for private and out-of-Texas MD schools, and TMDSAS, which is for public Texas schools. AACOMAS is for private DO schools. Next, you submit secondary applications (called “secondaries”), and fourth, interviews.

After completing your prerequisite classes, taking the MCAT, and getting your letters of recommendation in, you need to interview with the OAA. This interview is typically done during the spring of your junior year. In the summer after your junior year, you actually start applying. To begin, you fill out the AMCAS/TMDSAS applications through their respective websites. You can submit TMDSAS on May 1st and AMCAS on June 1st (but you are required to wait until your spring semester grades are finalized), or you can wait as long as you like to submit each respective application through late fall. **Realize, however, that your chances of getting into a medical school greatly diminish if you submit past the end of July.** It is also always better to emphasize completeness and accuracy over an early submission date.

Source: Inside Health Education Podcast
TMDSAS 2017 Applicant Submissions and Offered Interviews by Month (Deadline - October):

May - 11% of the applicant pool submitted, 20% were offered interviews
June - 19% of the applicant pool submitted, 28% were offered interviews
July - 23% of the applicant pool submitted, 27% were offered interviews
August - 20% of the applicant pool submitted, 18% were offered interviews
September - 15% of the applicant pool submitted, 5% were offered interviews
October - 12% of the applicant pool submitted, 2% were offered interviews

**50% of applicants that submitted by August 1st received 75% of the interviews offered in the entire 2017 application cycle.*

TMDSAS 2018 Applicant Submissions and Offered Interviews by Month (Deadline September):

May - 15% of the applicant pool submitted, 30% were offered interviews
June - 33% of the applicant pool submitted, 42% were offered interviews
July - 22% of the applicant pool submitted, 17% were offered interviews
August - 13% of the applicant pool submitted, 6% were offered interviews

September - 17% of the applicant pool
submitted, 5% were offered interviews

**70% of the applicants that submitted by July 31st received almost 90% of the interviews offered in the entire 2018 application cycle.*

Submitting AMCAS requires that you pay a fee based on the number of schools you apply to. Your application will then be verified. The “verification” process is where AMCAS checks your official transcript against what you put down in their standardized web form. The earliest the registrar can send your transcript to AMCAS is after your final grades are posted. After you have submitted your application and your transcript has been received (which can take weeks in itself), verification can still take weeks while you wait in the queue. Sometimes unforeseen circumstances such as a bad test day, rescheduled exams, or personal reasons will leave applicants without an MCAT test score by the time they need to submit their application. Consequently, this may result in the student needing to reapply during the next cycle; many students fear the negative stigma applying outside of their cycle and worry what medical schools may think. However, in such cases, there is an option to submit your primary application early to one “throwaway” school in order to be verified early. Then, once you receive your MCAT score, you can decide whether you would like to apply in that cycle. By utilizing this strategy, you will be a reapplicant ONLY at one throwaway school if your MCAT deters you from applying in the same cycle. After your AMCAS application is verified, it will automatically be sent to the schools you designated beforehand. TMDSAS will ask for transcripts later in the process (August); do not send your transcript in before then. The verification process is essentially the same, but it is not common to utilize a “throwaway” method for TMDSAS.

Schools, after receiving your primary application, can take however long they want to send a secondary application to you or make the secondary available on a website. This stage begins the possibility for rejection. The secondary application is not common for all schools. Some secondaries have essay questions, some have background information, some want you to reproduce your entire transcript, or anything else under the sun. It really depends on the school. For example, some do not have essay questions on their secondaries. Some have six unlimited-length essays required. The average secondary application has a fee and three essays (each requiring a paragraph or two of writing). **You should aim for a two-week turnaround time on secondaries; meaning that you write, submit, and turn in within two weeks of receiving.**

Interviews occur thereafter. By this stage, you can tell what your pool of schools looks like. For a given interview, you pay to fly or drive to the school, stay for a night, and interview during the day. If you can stay with a medical student, it is generally a good idea (save on money and get to know the culture of the school). Interview days vary as well. Some have many information sessions while others have none. Some have traditional, one-on-one faculty interviews, while others have multiple mini interviews (see “Medical School Interviews” section for more information). Interviews can be closed file (they have none of your documents), open file (they

have all of your documents), or something in the middle. It depends - as we keep saying, do your research ahead of time for each school.

After that, you wait. Then, hopefully, you are accepted. The first day that acceptances are extended is October 15. Then, you start your health professions education! For AMCAS schools, you can hold up to three acceptances until April 15th and must hold only one acceptance by April 30th. However, you can remain on waitlists until the first day of medical school.

TEXAS MATCH: For TMDSAS schools and Texas residents, you can hold as many acceptances as you want until about mid-February, for this cycle, because there is a match process. Non-Texas residents do not participate in this match process and hear back from the schools as they would from an AMCAS school.

All eligible applicants (only Texas residents) will rank schools at which they interviewed according to their preference for attendance (**Deadline: February 19**). TMDSAS will then match the applicants with their highest preference school according to the acceptance lists of the medical schools themselves (**Results of match rankings: March 5**).

Some applicants are lucky enough to get a pre-match offer from Texas public schools, which is an offer of acceptance extended prior to the formal match process. Applicants may receive unlimited match offers, and it guarantees that you will match to a school during the Texas match. If you rank this pre-match school highest on your list during the match, you will go to that school. If you rank other schools above your pre-match school(s), there is a possibility you will match to a different school that you'd rather go to. Essentially, the match process confirms the pre-match offers that some applicants may be holding and fills the remaining open slots for medical schools. Applicants with multiple pre-match offers will leave the match process with one acceptance.

Letters of Recommendation

The process of letter writing at Rice typically begins when you open a file with the Office of Academic Advising during your junior year. There, you will receive waivers to be given to the people who will be writing your letters. You will waive your right to read these letters.

This is part of the Open File process. It's in your best interest to adhere to the deadlines from the OAA - there are over 200 applicants every year, which makes the OAA very busy with just pre-medical students, in addition to all other advising. If you are late on any of the required documents, you could end up without a committee letter.

Number: 3-5; typical breakdown:

2 Science Professors

Non-science Professors

Advisor of some kind (volunteer, research, etc.)

When?

End of fall semester junior year or beginning of spring semester junior year (or about 4-5 months before you submit your applications, if you're taking a gap year or two). The letters are due in mid-May, and the OAA will have your committee letter written and submitted by mid-July.

What's a committee letter?

Health Professions Advisors (one or two) conducts a brief interview. Then a committee will read over your application, your interview and your other letters and write a "committee letter." This is called the Health Professions Advising Committee Letter. For many schools, this "committee" letter satisfies ALL letter requirements.

Sending the letters to schools:

We use VE Collect at Rice. You'll get more specific instructions in the applicant packet for Open File, but essentially you create a profile, invite the recommenders, and then once all of the letters are uploaded, you "lock the quiver" and send it to the OAA for them to write a committee letter.

You indicate on AMCAS/TMDSAS/AACOMAS that you'll be receiving a committee letter from Rice University.

Waiver:

Given to each letter writer.

You should waive your right to see the letters.

Medical schools typically require 3-5 letters. At a minimum, one will be required from a science professor and one will be required from someone who knows you outside of the classroom (usually an advisor of some kind). Because each school has its own nuances of how many letters it wants, you should get one letter from a non-science professor, two from science professors/your PI (if you're doing research), one from an activity advisor, etc. As a general rule, professors are much more likely to write you a letter if you've done well in their class - it's not a great idea to ask a professor if you got a B in their class, for instance. Make sure you pick someone who not only knows you well, but is a good writer and can make you look good in words.

Make writing a letter as easy as possible for your reviewers. First, schedule an appointment to come in and talk with your teachers about getting a letter. Second, bring a folder or email (a lot of professors like digital so they don't lose things) your résumé, unofficial transcripts, and personal statement or other clarifying information. It is better to meet with them in person to discuss the letter.

Next, the waiting begins. You will need to check in with your recommendation writers about once a month to make sure that they actually finish the letter. Once you have confirmation that

the letter is finished, you should send a thank-you note. This should be more than just an email - make an effort to give them a thank-you card, if possible.

Finally, tell your writer where you were accepted to, rejected from, or if you decide to withdraw from applying altogether. Keep in mind that your writer has a vested interest in seeing you succeed. They deserve to know what happened.

For students interested in applying to medical or dental school, Rice submits a formal health Professions Advising Committee (HPAC) letter to formally introduce you to schools and provide an in-depth narrative on your candidacy. While an optional service, this has been a Rice tradition for over 30 years. Admission committees value these letters because they provide an integrated and institutional perspective on an applicant's readiness for a future career in the health professions. If you would like a letter written on your behalf, all applicants are required to participate in the "Open File" Process. This process includes providing the committee with relevant information such as a high school activities paragraph, CV, personal statement draft, and answers to a variety of informational interview questions. Together, the information is used to craft a personalized committee letter of evaluation. As part of the Open File process, Rice's Office of Academic Advising combines all your recommendation letters into one packet ultimately submits it directly to various health professions application services. The OAA encourages students to comply with all Open File deadlines to ensure their letter is of the highest quality:

Task	Deadline
Pay Registration Fee	**January 29, 2021 at 10 AM**
Complete HPA Applicant Information Form *(Google Form)*	
You are not registered until you have completed **BOTH** steps above. Anyone registering after 10 AM on January 29, 2021 will not be eligible for a pre-application appointment and will only receive a cover letter.*	
Request Supporting Letters of Evaluation	**February 12, 2021**
Submit Open File Materials in Box Folder	**February 12, 2021 at 10 AM**
• SJP Disciplinary Request Waiver	
• High School Paragraph	
• Curriculum Vitae *(CV)*	
• Pre-Application Form	
• Personal Statement	
1. If these five documents are not **complete and thorough**, then you will be ineligible to make a pre-application appointment and will only receive a cover letter.* 2. You will not be allowed to make any updates or changes to these five documents until later in the semester.	
Schedule Pre-application Appointment	**February 17 – April 2, 2021**
Complete Pre-application Appointment	**February 22 – April 9, 2021**
Update Open File Materials in Box Folder	**April 12 at 10 AM – April 23, 2021 at 10 AM**
Your Box folder will unlock for this period only to communicate any updates you wish to share with the committee; this is entirely optional. Please note that OAA advisors will not provide feedback on updated materials, and Box folders will relock at 10 AM on April 23.	
Start Applications to AMCAS and TMDSAS	**Beginning May 1, 2021** *(ASAP)*
Supporting Letters of Evaluation Received	**May 21, 2021**
Submit veCollect Locked Quiver Form to hpa@rice.edu	**Once all letters are received**
Complete Applications in AMCAS and TMDSAS	**By end of June 2021**
**A cover letter is a shorter version of a committee letter and is sufficient for your medical school application.*	

According to the Family Educational Rights and Privacy Act of 1974 (FERPA), you are legally allowed to read anything that a school has in your application folder, including your letters of recommendation. However, you should waive your right to access the information covered by the act. When you open your file, the Office of Academic Advising will give you a waiver for each letter where you can check “I waive my right to read this letter” that you give to each letter writer. By waiving your right, the writer is able to write more freely in giving his or her true feelings.

AMCAS/TMDSAS/AACOMAS

AMCAS and TMDSAS have a few material differences, so we'll cover both. AACOMAS isn't as common for Rice students, as two of the DO schools in Texas use TMDSAS anyway. It should be essentially the same - the only significant thing to note about DO schools is that many will expect you to have experience shadowing a DO and be able to justify why you're interested in osteopathic medicine.

General Tips/Information:

- Send official transcripts on the first day possible (after you get your final grades from the semester)
    - Both from Rice and other institutions (ex: community college or other universities) - any university you have ever taken classes from, including classes taken high school that were dual enrollment
    - TMDSAS is requesting transcripts after acceptance starting in 2020 - so don't send to them
- Rice charges $10 per transcript (both paper and electronic)
    - Paper takes a while (about 4 weeks until AAMC received it)
    - Electronic was received in 2 hours and verification took 3 weeks - not all electronic transcripts may be allowed
- Print your application before you submit and check that everything is spelled correctly
- Felonies/misdemeanors: AAMC runs background checks!
    - In Texas, speeding tickets are considered misdemeanors so make sure to report them!
    - Minor in Possession - many college students have had alcohol before turning 21; if you get caught, you do have to report it to the AAMC. It's a lot more serious if it results in harm to another person (like DUIs) rather than just you holding a bottle of beer outside of your dorm room. Just be aware that alcohol charges are common and they absolutely need to be reported.
    - If you have a serious misdemeanor/felony, it's in your best interest to explain it to the AAMC, admit your mistakes, and show your growth from the experience.
- Academic dishonesty
    - Same ideas as misdemeanors - report it yourself, explain it, admit your mistakes, and show growth. Always assume that any academic infractions will get reported from the school on your transcript or in letters.

AMCAS

AMCAS is the primary application, the “common app,” for schools outside of Texas (and Baylor). The website is www.aamc.org. If you’ve already registered or taken the MCAT (which you should have, if you’re opening an application!), you have a username and password already.

When it opens: May 4 (usually early May)
When you can submit: May 28 (first day you can turn in your application)
When it transmits: July 10 (usually earlier, but this cycle was delayed by two weeks because COVID); this means that this is the first day any medical school in AMCAS will receive your application
Standard timelines:

1. Prior to May 1: Write your personal statement, draft versions of activities statements
2. May 4 - May 28: Fill out the actual application, PROOFREAD, edit
    a. Send your transcript from the school the day you get your final grades from Rice! AMCAS can take a while to receive your transcript (**up to 4 weeks**), so earlier is better.
3. May 28 - early June: Submit your application, make sure your transcripts are in
    a. You want to submit early because AMCAS goes through a process called verification, where they check transcripts against your application. This can take **up to another 4 weeks**, and your application will not be transmitted until you are verified - so have transcripts in early with your application to get in that verification line.
4. June - early July: pre-write your secondaries, by looking at SDN on the school-specific threads from the previous application cycles. Most secondaries get repeated from year to year.
5. July 10 - September: as you receive secondaries, try to turn them in within two weeks!

AMCAS has an applicant guide which is incredibly helpful if you go step-by-step when you’re filling out the application.

We summarized the main points here, though.

There are eight main sections. A majority of these sections are rather straight-forward and easy to figure out; nevertheless, some of the confusing parts are explained here:

1. Section one asks for your legal name, preferred name, any kind of ID number that’s relevant (school IDs can help match transcripts), and your place/date of birth
2. The only tricky thing about section two is that there is a “Transcripts” section where you print a form to give to the Rice Registrar so that Rice can send the transcript to the correct place. This form is also available in the main menu under “Print Transcript Request Form.”
3. Section three has two things to note:
    a. Preferred address is typically your Rice address whereas the permanent address is your home address. That depends when you’re graduating, of course.

   b. You can indicate here that you are applying URM (under-represented minority), which is labeled as “disadvantaged status.” It’ll ask about your parents, your family, your family’s income level, and any kind of felony or misdemeanor.
4. The coursework section is one of the more complicated sections. If you have AP credits, for example, things could be different because you must designate “First semester” and year, etc. Mostly, it is just tedious entering your entire transcript into web form. Just print off your academic transcript from Esther and do your best clicking around on the AMCAS form.
   a. A couple more notes: First, the maximum grade on the AMCAS scale is an “A” (not an “A+”).
   b. Second, one of the most confusing things is “Course Classification,” which has you indicate in one of the classifications they provide. This is especially important because Biology, Chemistry, Physics and Mathematics (BCPM) grades are calculated separately.
   c. Where BCPM is composed only of those courses explicitly designated as Biology, Chemistry, Physics, and Mathematics. This matters a little bit because let us say you got an “A” in an engineering physiology class. Well, technically, that can be counted as BIOL and inflate your BCPM GPA.
   d. After you submit your entire application, this section will be compared against your official transcript for verification by AAMC personnel, which is why verification takes weeks.
5. Work/Activities is the most difficult section. This is your chance to write about 15 of your top activities, work experiences, and awards. There is a character limit for your description of the activity (700 characters for the 2020 application year). The 15 experiences on your final application are automatically ordered in reverse-chronological order by start date.
   a. You can designate three activities your “most meaningful” activities, and you’ll get an extra 1325 characters to expand on it. Use that space to really reflect on the experiences, don’t just provide more explanation.
6. The Letters of Evaluation/Recommendation section comes next
   a. Rice submits committee letters. Click to add an entry for the committee letter (which includes all of the individual letters), not for each letter individually.
7. The Medical Schools section is where you designate which schools receive your AMCAS application. There is a standard fee for each school you add.
   a. For 2020, it costs $170 for the application, and $40 for each school. That doesn’t include the secondary application fees - those come later.
8. “Essay(s)” is the personal statement (see “Personal Statement” section for further detail). For the 2020 application year, you are allotted 5,300 characters for your essay.
9. The Standardized Tests section is where you can verify that your MCAT scores were received (should not be a problem since the AAMC runs both AMCAS and the MCAT).

Early Decision AMCAS

Like undergraduate admissions, some medical schools offer early decision programs. Applicants are allowed to apply to only one US medical school early decision with the application deadline being August 1 for most participating programs. Additionally, applicants cannot apply to any US medical school in their regular cycle until after receiving a rejection for the early decision program (decisions occur between September 1st and October 1st).

TMDSAS

TMDSAS will look fairly similar to AMCAS; the interface is a little bit older and less smooth, but it'll ask for much of the same information.

When it opens: May 1 (usually early May)
When you can submit: May 1 (first day you can turn in your application)
When it transmits: June 1; this means that this is the first day any medical school in TMDSAS will receive your application
Standard timelines:

1. Prior to May 1: Write your personal statement, draft versions of activities statements
2. May 1 - June 1: Fill out the actual application, PROOFREAD, edit, SUBMIT
    a. TMDSAS asks for transcripts later, so submit as soon as you can!
3. May 28 - early June: Submit your application, make sure your transcripts are in
    a. TMDSAS does not verify immediately, they just process to make sure everything looks right / you have the right prerequisites. They'll verify later in September - but still, processing can take up to 6 weeks!
    b. Pre-write your secondaries, by looking at SDN on the school-specific threads from the previous application cycles. Most secondaries get repeated from year to year.
4. June 1 - September: as you receive secondaries, try to turn them in within two weeks!

TMDSAS also has an applicant handbook.

The sections are organized as follows:

1. Application Info
    a. This has the status of each section and your applications to each school, as well as if your MCAT and letters have been submitted.
2. Select Schools
    a. Here, you choose the schools you'd like to apply for, and indicate if you're interested in a dual degree program.
3. Questions
    a. Personal: This section includes your personal information, including demographics, socioeconomic information, and parent/family information. If you have a parent physician, it'll ask for their school and date of graduation. Felonies/misdemeanors are here too.
    b. Education: in addition to your college courses/grades, it asks for high school information, like your school, class rank, and ACT/SAT scores. Those can be annoying to find, so just make sure you have that stored somewhere.
    c. Personal Biography: this is a lot like the activities section on AMCAS. You can only list activities in one section (except for paid employment & healthcare

activities, which you can double-list). You'll have 300 characters for each experience and 500 characters for your three most meaningful experiences.

4. Essays
    a. In addition to a personal statement, TMDSAS has two additional essays. The personal statement is slightly shorter (5,000 characters)
    b. The first one asks about diversity and teamwork, and how you'd contribute to the educational environment at the medical schools (2500 characters).
    c. The second is "optional," but it's essentially required. It asks if there's anything else you'd like for them to know - if you've had some kind of educational interruption, nontraditional life circumstances, misdemeanor/felony/academic dishonesty, this can be a place to put that in. (2500 characters)
5. Supporting Documents
    a. Photo - have a professional photo of you in a full suit, with your face clear, in a professional background ready. The CCD can help you with this if you don't have a photo ready.
    b. MCAT score - you have to get it sent in from AMCAS, which is easy and is processed relatively fast.
    c. Letters of Evaluation - Rice students will indicate that you have a committee packet letter.
6. Chronology of Activities
    a. This builds a timeline for you of everything you've done. You can import it from the activities section and build on it. This should account for all time between high school graduation and matriculation for med school (so, August the year AFTER you apply); try to not have gaps longer than 3 months.
7. Certification and Payment
    a. You can't change some sections after you pay. TMDSAS has a flat fee of $185, regardless of how many schools you apply for. This does not include secondary fees.

Joint Admission Medical Program (JAMP)

JAMP is a program run between Texas universities and medical schools that guarantees qualified low-income students admission to some Texas medical schools.

Benefits

- Undergraduate scholarships and stipends
- JAMP summer internship experiences
- Clinical enrichment
- MCAT preparation programs
- Mentoring
- **Guaranteed admission to a Texas public medical school** if all criteria are met

- Medical school scholarships

Applicants for this program must attend a Texas university associated with JAMP directly after high school and must have an Expected Family Contribution (EFC) of no more than $8000 based on the FAFSA. Additionally, you must have a GPA > 3.25, score >502 on the MCAT and be a Texas resident (US citizen or permanent resident). To apply to JAMP, recognize that you apply at the beginning of college (end of freshman year), so think ahead and get in contact with the OAA to get your materials together ahead of time.

AACOMAS

AACOMAS is like the “common app” but for DO schools.

When it opens for submissions: May 5th
When it transmits: June 15th
Deadlines: January to April

Standard Timelines

1. Prior to May 5th: Write personal statement, draft versions of activities statements, contact potential evaluators, and prepare standardized test scores and official transcripts
2. June 15-mid July:
    a. Create account and complete College Attended and Evaluations Section
    b. Send official transcripts to AACOMAS, enter coursework into application, and check with evaluators if they have received evaluation request via email
    c. Complete and submit application
3. June 15 onwards: receive and complete secondaries as fast as you can!

AACOMAS has links that which is helpful if you go step-by-step when you’re filling out the application:

Starting Your AACOMAS Application
Filling out AACOMAS Application
Sending Transcripts and Test Scores
Submitting and Monitoring Application
Student Guide to Osteopathic Medical Colleges

The main sections of the application

1. Personal Information
    a. Gathers your biographic and contact information, as well as citizenship, race/ethnicity, and other information
2. Academic History
    a. Input high schools and colleges attended

   b. Transcripts
      i. Link for how to enter in transcript information
         1. Must select course subjects from a standardized list that has categories from which AACOMAS calculates GPAs
            a. Subject List and Categories
      ii. How to send transcripts
         1. Must be sent to all institutions listed in Colleges Attended section
         2. Addressed to AACOMAS and mailed by registrar
   c. Can self-report but make sure the programs you're applying to want you to send official test scores
      i. Must use online MCAT Score Reporting Service offered by AAMC
      ii. Once your MCAT scores are attached to your application, they cannot be removed. Will remain attached to your application if you re-apply.
3. Supporting Information
   a. Evaluations are submitted by evaluators themselves through *Letters by Liaison* (recommender portal).
      i. Some programs have specific requirements about evaluator roles or relationships
      ii. Committee letters: enter committee chair as evaluator and upload through recommender portal
         1. Individuals who contributed to letter may not be used as additional evaluators
   b. Achievements
      i. Types
         1. Honors: Special distinction for work done like Dean's List and memberships in honor societies
         2. Presentations: Delivered in person and virtually, on-campus and regional and national conferences, or public-speaking engagements
         3. Publications: Through media organizations, including newspapers and journals
         4. Scholarships: based on academic, athletic, and other achievements
   c. Experiences
      i. Each program's definitions and requirements may vary so your experience may not be accepted by every program the way you categorize it
      ii. Focus on experiences within the last 10 years and at collegiate level and above
         1. Only current and in-progress experiences
      iii. Types
         1. Non-healthcare employment: Work done outside of healthcare field or research lab

2. Non-healthcare volunteer or community enrichment: Examples like Habitat for Humanity, tutoring students, participating in or working for a fundraiser walk or blood drive
3. Healthcare experiences: Both paid and unpaid work in health or health-related field where you may have patient interaction like filling prescriptions, delivering patient food, cleaning patients and/or their rooms, working as a scribe, medical assistant, and etc.

iv. Personal Statement
1. Maximum of 4,500 characters including spaces
a. Should have general knowledge of osteopathic medicine and how these principles have shaped your life and your pursuit of the goal of practicing medicine
i. Focus on social and environmental factors of each individual patient and ways in which these impact health
b. Don't rehash AMCAS personal statement
2. Once you submit you cannot edit

d. Program Materials
i. For programs that have additional application requirements
ii. Can view important information about each program

How To Craft Your School List

Basic information to consider

- For states where you're a non-resident, research the proportion of in-state vs out of-state applications the med school accepts. However, not all out-of-state students are equal- pay attention to any special regional agreements schools may have with other states. Some public schools, especially in the Midwest, have to accept a certain number of students from neighboring states. (see here and here for examples)
- Texas 90/10 rule: All Texas public medical schools have to have 90% of their incoming class coming from Texas residents - it's extremely difficult to get into Texas public schools as a non-resident. You can find out about Texas residency here.
    - Just going to Rice for four years does NOT count as Texas residency
- DACA/International - research each school to determine whether they will allow applications if you are not a US citizen/permanent resident
- International/Caribbean medical schools: neither are recommended
    - International Medical Graduates (IMGs) generally have an extremely difficult time matching into a US residency at 67% versus the typical US allopathic match rate of 94%, so if you intend to come back to the US after medical school, international is a very difficult path to take

    - Caribbean medical schools: generally not recognized as the same caliber of allopathic medical school in the United States, have high attrition rates, poor clinical rotation sites, and lower residency match rates
    - Neither IMGs or Caribbean graduates are necessarily bad doctors; however, the system does not protect them as much as US medical school graduates in terms of residency matching
- Apply to a higher number of schools if your state's public medical school(s) is very competitive
- Get to know what the med schools look for in applicants. Read about the school's history and mission statement to see if you're a good fit
- DO vs MD
    - Both osteopathic (DO) and allopathic (MD) medical schools are still that - medical schools, and both produce physicians
    - MD candidates have to take USMLE; most DO candidates take both COMLEX and USMLE
        - These are the board examinations necessary for certification
    - However, in 2019, the residency systems for MD and DO merged, so there are no limitations to being a DO in terms of future residency/career possibilities
    - DO schools generally have lower mean MCAT and GPA statistics
- Make sure your MCAT and GPA is at least in the 25th percentile of the med school you want to go to
    - "Reach schools" – strong programs that have average metrics above your scores.
    - "Target schools" – programs that match your MCAT, GPA, and other metrics, which you are appropriately qualified for.
    - "Safety schools" – programs for which you exceed the average qualifications.
- Recommend buying Medical School Admission Requirements (MSAR) from AAMC. It costs about $30 for a year subscription and provides information about the MCAT average scores, AMCAS application, class size, tuition, and other data provided directly by medical school admissions offices.
    - Especially helpful if you are applying out of state since it gives information about their preference for in-state vs out-of-state and what extra requirements they have for out-of-state residents
- Characteristics of med school
    - Quality and reputation of the medical school: can affect the quality of your training and your future professional opportunities.
    - Geography
    - Clinical/Research/Professional opportunities: see if there are programs that excel in the specific interest or specialty you wish to explore
    - Tuition/finances – schools will vary in their tuition based on private versus public and in-state versus out-of-state
    - School culture
    - Academics

- Traditional lecture or problem-based learning
- Schedule (block class or multiple classes)
- Basic sciences structure
- Grading system (is it pass/fail? More schools are moving toward this)
- Focus on research, primary care or specialty

Links to help with making a list:
AAMC: https://apps.aamc.org/msar-ui/#/landing
TMDSAS: https://www.tmdsas.com/
AACOMAS: https://choosedo.org/choose-do-explorer-registration/

Other things to consider

Curriculum: Integrated versus Standard
What an integrated as opposed to a standard curriculum means in medical school makes a difference in how the information is presented to you. A standard curriculum means that the information is separated into classes. You will have a biochemistry class, and physiology class, an anatomy class, etc. An integrated (blocks) curriculum is organized around organ systems in the body. That means you will learn the biochemistry, physiology, anatomy and all other relevant information about the cardiovascular system, then the respiratory system, etc. The information you learn at any medical school will be the same; the method of presentation is what varies from school to school. More schools are shifting from standard to integrated curriculums now.

Curriculum: Preclinical Length + Step 1
Another aspect of the curriculum is the length of the basic science years. The standard length for basic science curriculum is two years. Some schools, such as Baylor, finish basic sciences in a year and a half; Dell, in Austin, does a little over a year of preclinical. This accelerated curriculum allows for an extra semester in clinicals, which means that you get to do elective rotations in areas of interest to you before you have to apply to residency. This may also allow for more time to do research or pursue a more concentrated focus or a dual degree. This allows you to get a much better feel for what specialization you want to have as a resident, whereas the standard two years with basic sciences generally does not afford that opportunity.

Step 1 is the first part of the licensing exams that you'll take as a physician. By the time you arrive in medical school, it will be pass/fail. Most schools take Step 1 at the end of preclinical curriculum, generally at the end of the second year. Some schools, such as NYU, take Step 1 at the end of the third year, after there is some clinical experience.

Grading system: Pass/Fail or Grades
Surprisingly, not all medical schools give you grades during your basic science curriculum. Many just give you a rating of a simple pass or a fail. My personal opinion is that I would not want to go to a school that gave grades. A pass/fail system takes the stress from studying. The

urge to study just a few more hours because you are worried about the difference between an A and a B is removed. Some schools have tiered pass/fail systems, meaning they have honors, high pass, and pass or similar variations on the theme.

Patient population of teaching hospitals

For those of you interested in working with underserved populations, the teaching hospitals each medical school has their students rotate through will make a big difference in your clinical years. Researching what hospitals (county, private, VA) your rotations will be in at each medical school will impact your clinical experience greatly. For instance, Baylor and McGovern have the opportunity of the many hospitals in the Texas Medical Center, whereas schools such as A&M send students to different campuses in different cities after 1.5-2 years to do their clinical curriculum.

Diversity

It is important to understand how the faculty supports medical students of different races, sexual orientations, religions, and so on to make sure the school will be able to appropriately provide for you. Additionally, evaluate how they support women and people of color in leadership and students, and their physical and mental health resources for students, especially during COVID-19. Asking medical students about their experiences is one of the best ways to truly understand what the culture of the school is like.

Overall mission

Look at what their mission is focused on - is it focused on primary care and community health? Rural healthcare systems? Global health? Physician-scientists who are focused on research? Medical innovations? The fit and the focus of the school are important factors when you're deciding where to apply, and this varies from person to person.

Student life + student opinions

If you have a chance, it's really helpful to talk to medical students from the schools that you're interested in. At Rice, we have connections with Baylor and McGovern, which makes it easier, but if you have the chance, reach out to other students at other schools (LinkedIn is a good way to do this!). Ask why this school/why not that school can help you figure out what you're looking for. What does the student environment look like - are students driving change in the medical school? Are students involved in extracurriculars and the overall life of the school and the community? Do they think it's cutthroat and competitive or friendly and collaborative? Do the students have a substantial nightlife, if that's important to you, or is it more sedate? Think about where you'd fit in as a student.

The Personal Statement: A Guide to Writing the Pre-Medical Personal Statement

Louise Gliga, WRC '12

Most pre-medical students who hear the phrase "personal statement" want to run away and cry. They know it is coming as part of the medical school application process, but personal writing can be a daunting task. Classes that fulfill Rice's writing requirements for pre-meds—which are based on the requirements of most medical schools—usually do not cover personal writing. Having a book off of which to base an argument is much easier than digging deep and putting the motivation of your whole life into words. Nevertheless, the personal statement, or PS as I will call it from here on out, should not be the bane of your existence. In many ways, it is like the essays you have written throughout high school and college, and you can use many tools you already have to make the process easier.

One thing you need to consider is the audience. Is it basic science faculty, physicians in medical education, physician in clinical practice, retired physician, and/or medical school student reading your PS? There are also potential generational, racial/ethnic, class and religious/political differences between you and the reader. Consider how your PS may have certain bias and ensure it makes sense to a large audience.

The PS distinguishes candidates from others. It illustrates "soft" skills lile cultural awareness and interpersonal abilities, demonstrates altruism and conviction, shows evidence for good writing skills, and, most importantly, motivations for wanting to be a doctor. AMCAS allows for 5,300 characters with spaces for the PS while TMDSAS allows for 5,000 characters with spaces. This gives you about one page, single-spaced in which to present your case. In your PS, you want to show motivation for why you want to be a doctor.

- Know that the "illness narrative" (yours, a grandparent's) is common and will not help you stand out.
- Narrow focus, consider how your experiences fit into the changing culture of medicine, and make sure your "past fits your future" by demonstrating self-awareness and self-motivation. Find a central interest and how these experiences brought you to where you are now.
- When developing a structure, choose 3-4 meaningful experiences to discuss in depth, ensure you save space for authenticating specifics, and ensure you have topic sentences with strong transitions between body paragraphs. Write about each of them without worrying about word counts. Reflect on what was impressive about these experiences, locate connections between them (talk through them with someone else), and imagine these experiences as points in a narrative you are constructing now (don't need to be chronological or reflect what you were thinking at the time you experienced them).

- Avoid imbalance (ex: over-emphasis on childhood or high school experiences), repetitiveness (no momentum), and disconnected experiences. If you do include childhood/high school experiences, make sure they are experiences you've continued into college that were formative in your development and forged a firm connection between an earlier experience and what you've done lately. However, focus more on recent experiences if anything.
- Frame your experience by offering a few sentences that orient the reader to the activity or experience you are describing, and situating the experience within the context of the statement as a whole.

Throughout your writing, demonstrate maturity by demonstrating awareness that your own growth is an ongoing process, reflect honestly on what you've learned, and show that you've taken charge of your own education. Also demonstrate your leadership potential by recognizing how leadership may manifest like when advocating for someone that is marginalized by a group, maintaining equanimity in a stressful situation, or re-examining standard procedures. Avoid confusing participation with initiative, associating leadership with position of status, and defining leadership in a narrow fashion like a top-down leadership. Reflect on your communication skills by grounding discussion in medical practice like respecting patients' values and demonstrating active listening and consider subtleties like body language, position, tone, and word choice. Avoid platitudes, cliches, and "marketing-speak."

Phrases to avoid:

- I want to make a difference
- Sometimes you just have to be the change you want to see in the world
- I want to give back
- I went above and beyond
- I am passionate about
- I want to catalyze change
- A good doctor gives hope
- I want to create brighter future
- I want to find a cure

When talking about your experiences, make sure to include vivid detail and express the key emotions you felt. Your reader needs to really understand what you were feeling and how that has shaped your decision to be a doctor. Saying you were sad when your best friend died from cancer is not enough; expressing that you felt lost, devastated, confused, and like you wished you could have helped is much better. Add details about your thoughts and feelings leading up to that moment, and what you did afterwards. The PS can be personal, but avoid a confessional essay such as lengthy descriptions of thoughts and feelings written as an inner dialogue, philosophical reflections, and descriptions of deep shame, self-loathing, or guilt. It may be interpreted as lacking maturity for showcasing your raw emotions, self-indulgent when not mentioning specific experiences, lack of boundaries and judgement when you share intense vulnerability with strangers, and can bring resilience into question when candor about physical

and psychological weaknesses. On the other hand, avoid the impersonal essay that re-hashes the CV, superficially talks about a few experiences, and is full of platitudes and clichés. It can make the PS sound emotionally distanced with little understanding of what is truly important in one's experiences and a lack of empathy if there is an unfettered and conflict free path.

To make sure you are diving deep, remember a time when:

- Something proved more challenging than you initially thought
- Came face to face with one of your presumptions/assumptions
- Came to understand limitations of current education/experiences
- Attempted to experience someone else's point of view
- Witnessed a turning point (in your life or someone else's)
- Struggled to explain something to someone
- Made an unexpected connection between

When addressing touchy subjects, accentuate positive experiences without resorting to platitudes, focus on knowledge gained from other areas of care within the health field, and display knowledge of the complexity of current issues. Don't describe negative encounters with health professionals, teachers, and mentors, suggest other health related professions are less important, and don't speak in generalities. When addressing touchy subjects like weaker GPA/MCATs, special hardships (ex: financial), or mental or physical illness, determine if you need to mention the situation, be brief, show improvement and don't show excuses, be wary of conveying lack of resilience, and know that anything is fair game for the interview.

Once you have an idea of what you want to talk about, you can begin structuring your essay. Here is where your years of writing will benefit you. In order to create a memorable statement, craft a strong "hook," and try to come full circle with a difference. Make your essay cogent while focusing on connection between the paragraphs/themes and lead paragraphs with a claim. Using personal leads, dialogue leads, informative and descriptive leads, turning points, and diverse interests are all good ways to grab your reader's attention and make sure they want to continue reading it. After your hook, you can have a brief introduction that narrows down to your main point, just like a scholarly essay makes its way down to its thesis sentence. If you like to write your introductions last, make sure to at least have your main point formulated so you have something to relate your essay to. Your body paragraphs should focus on your experiences and why they are significant. A short conclusion is helpful, and it should tie together the theme present in each body paragraph. There is no set number of paragraphs to include, and your introduction and conclusion do not even need to stand alone as individual paragraphs. However, there should definitely be an underlying theme to your essay that appears in every paragraph. As essay space is limited, it is useful to analyze each sentence to determine if it is necessary when reading through your drafts.

Besides the topics, theme, and organization of your PS, the tone is also very important. Extremely, high, formal language may be too much here, but do not be too colloquial either.

Use nuanced language, professional word choice in your statement. Keep your tone informative and constructive, as you do want to construct a picture of yourself for admissions committees. If you overcame a significant hurdle in your life, it is good to state how you got through it and learned and grew from it, but do not play it off like it was easy and you could totally help anyone and everyone get through the same thing. Any difficult experience should be presented as such, and any positive feeling should also be described as it felt to you. Avoid condescending tones, overly optimistic attitudes, and apathetic commentary. Use your honest feelings during an experience to gauge how to write about them, and back up your statements with detail and explanation.

With so many things to think about, the PS is not something you start writing when applications open in May. The Office of Academic Advising has a list of things it wants from you by December or January, and a very rough draft of your PS is not a bad idea to have completed at that time. If you cannot get the PS done in time, try to have a very rough draft completed by your Health Professions Advising Committee interview. The CCD can give good preliminary feedback and are good guides for where to take your essay from there. Continue to work on the PS throughout the spring semester before the summer in which you apply. Ask friends, family, other pre-meds, and pre-meds who have already completed the process to read over your essay. You should have some people read through many drafts as you work on them, but it is also important to have some people read it through just once to give you feedback on the overall picture an admissions reader would get. You are not alone in this process; do not be afraid to ask for help or input because it is the best way to improve your PS.

The PS is exactly what its name says: a personal essay about you and your motivations. View it as a regular essay, but about you instead of a book or article. As humble servants of the human population, it is not easy to write about yourselves, but the PS requires you to do so. Once you get started, it gets a lot easier. You will learn a lot about yourself, and this discovery will be useful when you begin interviewing. The PS is also something you can actually work on before applications open. Outside of making a list of activities, keeping up with schoolwork, and looking at schools, you cannot do much else until the applications open. The PS, however, is something you have a lot of time to perfect. It is a great feeling to simply copy and paste your PS in the box on the application and not worry about writing it. Working on the PS ahead of time makes applications less stressful, but also provides you with great insight into your motivations and why you are who you are.

Examples of personal statements follow.
DO NOT, UNDER ANY CIRCUMSTANCES, COPY THESE STATEMENTS.
IT IS CRITICAL THAT YOU DEVELOP YOUR OWN, ORIGINAL IDEAS.
DO NOT COPY THEIR STRUCTURES, THEIR WORDING, THEIR ANYTHING.
Before writing your personal statement it is good to read several examples, but your personal statement needs to be your own—it needs to tell your story and use your words. These example statements are here only to show you what sort of things go into a personal statement and what the length should be. That being said, please enjoy the following personal statements that were

kindly donated by our contributors. We have additional personal statements published here for additional perusal.

Raj Dalal, Wiess '20, Northwestern University Feinberg School of Medicine MD

Ahimsa is my favorite word. A central tenet in my faith, Jainism, *Ahimsa* refers to acts of compassion to others accomplished through a lifestyle of nonviolence. In different contexts, I have found various meanings for its application. Growing up, it meant being vegetarian to respect all forms of life. At my temple, it meant serving food to my elders and mentoring the youth. At school, it meant giving a cup of hot chocolate covered with motivational quotes to a new student. In an Uber, it meant lending my MCAT prep books to my driver. My initial interest in medicine was rooted in *Ahimsa*. I was intrigued by how my ideals of compassion and nonviolence aligned with the Hippocratic Oath's principle of "Do no harm." This initial interest has strengthened significantly as I have refined my understanding of how I can embody *Ahimsa* as a physician.

In college, I decided to volunteer at Ben Taub hospital, a public hospital in the heart of the Texas Medical Center. There, I interacted with patients prior to their discharge to offer a variety of medical, social, and financial resources to help them manage their expenses. The stories of the patients I encountered stayed with me long after they were discharged. One patient came in with a broken leg - something I always regarded as an easily treatable medical condition. Upon discharge, he shared with me his concerns about finding a source of income now that he couldn't wait tables at IHOP. In addition, the patient did not have any means of transportation home and was now faced with navigating the city with his new injuries. Hearing his concerns, I offered him a metro card and a medication discount card in hopes that this would alleviate some of his expenses. This patient's story was not unique, and his concerns were echoed on a sliding scale by so many others. I began to understand health not only as a physical condition, but as something that significantly affected patients' lifestyles and their position in society. I learned the importance of hearing patients and building trust with them in order to treat not only the disease, but the human beings.

Interested in observing the role doctors play in serving their patients, I shadowed Dr. Yvonne Kew, a neuro-oncologist at St. Luke's hospital. Walking into my first patient room with Dr. Kew, I tried to hide my surprise when I saw 7 heads turn to us. I turned to Dr. Kew, expecting her to look similarly confused. Instead, she was elated. After introducing herself and me to the room, she praised her patient for bringing her family and commended the family for supporting her patient. Recognizing how important support systems are in care, Dr. Kew viewed the whole family as her patient. As she slowly explained CT scans with the family, I was inspired by how deeply the family trusted Dr. Kew. Each family member brought a notebook with them and were listening intently to every word that she spoke. Dr. Kew beautifully blended her knowledge of science with her compassion for her patient and the family. When going over treatment plans, she spoke not only about how they worked, but also about how the family could support the patient during treatment. Shadowing Dr. Kew reminded me again that compassionate patient care doesn't focus solely on the patient's disease, but considers illness as just one part of the patient's overarching life story.

My experiences shadowing Dr. Kew and working at Ben Taub sparked my interest in how a person's position in society could negatively influence health outcomes. I was particularly shocked to learn about the high maternal mortality rate in Texas and how it disproportionately affected black mothers. It was even more surprising to learn that my own home, Harris County, was not exempt from this issue despite being home to the world's largest medical center, skilled doctors, and cutting-edge technology. Driven to support policy that could benefit mothers, I led a group of my peers to the Capitol in a partnership with Doctors for Change, an organization of providers that were similarly passionate about legislative advocacy for their patients. There, my peers and I advocated alongside physicians and medical

students who used their clinical experiences to promote bills that supported postpartum depression awareness, immunization, increased coverage, and so much more. This experience was particularly inspiring as I was moved by the potential impact that I could have as a physician even outside the clinic. My experiences advocating in Austin reinforced the importance of contextualizing disease. Disease does not exist in a vacuum.

My definition of a physician has significantly transformed as I've seen how doctors can serve as listeners, educators, and advocates in addition to being healers and scientists. I have learned the importance of listening to patient stories and understanding their familial and societal contexts when considering treatments. While my understanding of medicine's reach has evolved, my motivation is still deeply anchored in the tenets of *Ahimsa* and the opportunity to compassionately serve patients, families, and communities.

Jacob Mattia, Wiess '20, McGovern Medical School/MD Anderson Cancer Center UTHealth Graduate School MD/PhD

I have been surrounded by medicine for as long as I can remember. Genuinely. My younger sister, Becca, has Down syndrome and was born with serious congenital heart defects, so my earliest memory is a mental image of walking through the halls of a brown-bricked hospital with my dad. As I grew up, our family spent a lot of time with medical professionals, and I started to notice that most people in the clinical environment never quite knew how to interact with Becca.

However, in high school, my family and I visited Dr. Brian Chicoine, a physician who specializes in patients with Down syndrome. While he knew exactly what Becca needed medically, what impacted me the most was the way he interacted with our family. Just like every "normal" person is unique, every individual with Down syndrome is unique, and Dr. Chicoine reached out before our visit to ask what he and his staff could do for Becca specifically. When we arrived, he did not treat her as a child, an independent adult, or even a standard patient with Down syndrome, but as a person distinct in herself. He changed the way our family thought about healthcare for people with disabilities and left an impression that continues to impact me today.

I have always loved science, but the way Dr. Chicoine attended to my sister solidified my desire to become a physician. I have experienced first-hand how easy it can be to lump groups of people together, but I want to care for patients by meeting them where they are at. I want to make sure that every patient is treated first and foremost as a person. With these goals in mind, coming into college, I took every opportunity I could to learn more about the people and perspectives in the world around me.

The largest opportunity was Rice University's Orientation Week (O-Week), and I plunged in head-first. Rice prides itself on its student life, and that culture is founded in the traditions and communities of O-Week. As an O-Week Coordinator for Wiess residential college, I spent nine months dedicating my blood, sweat, and tears into selecting upperclassmen Advisors, pairing roommates, developing training modules, and meticulously planning each event. Wiess's mantra is "Team Family Wiess," and I directed every aspect of preparation towards the goal of fostering that sense of family for each unique student.

The work seemed to pay off. Over the course of the week our Advisors were fantastic, the activities went as planned, and the freshmen grew closer. At the end of the week, emotions were high as everyone sat together in a dimmed room and shared their hopes and fears about college. One of my co-coordinators was crying beside me, yet, at this crowning moment of accomplishment, I felt inexplicably empty.

Then I began to realize how skewed my expectations had become. While transforming strangers into family over the course of a week is a memorable mission, relationships are far more complicated than

that. In every aspect of coordinating O-Week I emphasized that people are more intricate than I could ever understand, but in that moment the epiphany set in that the same intricacy extends to resolutions involving people. My dissatisfaction stemmed from the fact that I didn't achieve my overly simplistic goal of creating an instant "family." However, my individual-centered approach to achieving that goal ensured that each student was uniquely valued, which, while far less visible, is a far more meaningful outcome than any artificial family.

I grew to embrace the dissatisfaction of a complex resolution and realized that resolutions are never simple in medicine either. I can't expect to instantly cure a patient or offer any guarantees. Treatments will not always be effective, and endings will not always be happy, but if I can help a patient feel more human along the way, that is a significant impact in itself. Seeking to understand people is not only a way to help identify problems, but also a part of the solution.

My ultimate goal is not to be a doctor.

I believe that goal limits and simplifies the aims of my life. The stereotypical image of a doctor is an individual in the heat of the moment making split second calls to save the life of a patient. Learn about the body, diagnose diseases, prescribe treatments. It all seems so simple. Yet, if there is anything that my experiences have taught me, it's that both physiologically and psychologically, humans are the most complex beings in the universe.

I don't ever want to enter a position of medical authority with the notion that I possess the ability to neatly solve an individual's problem. What I want to do is emulate what Dr. Chicoine did for my sister. I want to sit down with people, thoughtfully absorb their background and needs, understand any pain they are experiencing, and use my expertise to humbly guide them on a path towards recovery. While becoming a doctor is not the focus of my life, I know attending medical school and becoming a physician is the right step on my path of supporting people by embracing what makes them unique.

Munachi Uzodike, Martel '19, UT Austin Dell Medical School MD

"One, two, three!", the children eagerly counted as their bodies sprung up and down off the tile floor. We had all gathered in the center of the classroom to participate in the routine warm up exercises – this time starting with push-ups. I was leading another session of the We Can program, an obesity prevention program for low income Hispanic and African Americanstudents. And while many people may quiver at the thought of being surrounded by a roomful of hyperactive elementary students, I was in my happy place. The room echoed with giggles and silly banter, but from the corner of my eye I spotted Ricky – a young boy with a round frame sitting cross legged with his whole being buried into himself. Thinking he just needed a little encouragement, I marched over to him with stiff arms like a robotic military sergeant, "YOU - CAN - DO - IT!". I waited for a chuckle. However, his gentle response has stuck with me until this day. Keeping his voice below the noise of the room he whimpered, "Ms. Muna, I can't". Reflecting on this seemingly simple experience has helped me resolve a longstanding internal conflict concerning my future in the health sector.

While I have always had a desire to practice medicine, a significant part of my undergraduate career has actually been spent investing in programs like We Can; that is, researching, learning, volunteering, and educating within the realm of public health. While this brought valuable experience in curriculum development and intervention implementation, it also challenged my initially undeveloped response to the question "Why medicine?". I once felt a love for people and science would suffice; yet in reality, my growing interest in community level prevention began to stand face to face with my fascination with the inimitable science at play in any given individual's body. Thus upon reflection, the classroom filled with children actively participating and benefiting from a broad curriculum ensured me of the capability of community health programs to combat health disparities. However, Ricky reminded me that there are always people who fit outside the general trends – those who need the individual and tailored care that

can be found in medicine. Now as a medical school applicant, I can say that I have answered the question “why medicine” by creating a specific vision for my future in medicine. I want to contribute to building an America and a world that is taking steps to actively reduce the effects of health disparities. However, I maintain the perspective that as much as our world is made up of communities whose health is affected by social and economic trends, those communities are made up of individual people who require personalized care. This demands that I have the skill set to medically care for and empower my patients, but also have the passion, ability, and compassion to use the systematically central position of a physician to make the social and communal changes that I believe in.

While my experience at We Can mentally brought this together for me, my time as an undergraduate student had been leading up to this conclusion. I have a sincere appreciation for how scientific problem solving can be applied to the human body. From immunology lectures, hours spent in the lab, and even to MCAT preparation, the medical sciences present a space to mix data and creativity to yield acute solutions. I saw this come to life in the emergency room as I observed a physician go from room to room, pulling from a depth of physiological knowledge to uniquely attend to the needs of each patient. At the same time, passionate discussions and projects centered on the inequities that exist within the realm of healthcare in the United States inspired a desire to improve health outcomes for disadvantaged populations. Furthermore, my African studies courses increased my mindfulness of my position as a black, African, immigrant, woman, in the United States. This awareness awakened a sensitivity to the health disparities endured by all of these underprivileged identities and a greater consideration for the distinctiveness of any individual’s background. The pieces have always been in place. However, I am now confident that I do not have to separate my two passions. In fact, I simply cannot.

Being a physician demands that I be precise in what I do with the individual, but still exists within the framework of working with an individual from a community with its own trends. In regards to Ricky, I never quite knew what was medically wrong with him. Beyond the fact that he seemed to be of an unhealthy weight, he would eventually tell me that he had always had issues with his breathing as well. Needless to say, there was more to his story. He was a young Latino boy from a low income family who would likely have lower access to health care and education. Thus, he was likely to be at high risk for conditions like diabetes and obesity. However, he was also Ricky. A boy with his own story and made up of his own unique genetic and molecular composition. Regardless of their backgrounds, I look forward to one day treating my patients with this mindset and working alongside other health care and community leaders to actualize a vision of excellent health care rooted in equity, empathy, and hope.

Jessy Feng, Brown ’20, UTRGV School of Medicine MD

Imperfect grammar. Thick accents. As the child of immigrants, these were minor speed bumps that have shaped my childhood. My bilingual upbringing allowed me to see the true power of language in connecting people. I grew up tagging along with my dad, a realtor, while he showed houses to his clients. Most of the clients he attracted were like us, recent immigrants from China with limited English skills. My dad found his niche, helping these people ease into a new country. I watched him go above and beyond to serve his clients, frequenting the restaurants they opened, showing them the best Asian grocery stores and even helping them register their kids for school. I saw how comforting it was to have someone who understood your background and was willing to support you. My desire to apply this level of service in my own life drew me towards medicine as I witnessed how advocating for patients could not only impact their health, but also their potential in life.

Having seen my dad use language to connect with people, I was much more aware of the need for that in the medical field. In my freshman year of college, I shadowed in the pediatric emergency department. There, I met a mother and her three-year-old boy, both of whom primarily spoke

Spanish and limited English. As diverse as Houston is, there were not enough translators to physically be present around the clock, making it difficult for open communication between the patient and the physician. Although the doctor knew some conversational Spanish, it was not enough to clearly communicate and address all the mother's worries. Thus, we went in and out of the room multiple times reassuring the mother, searching for a translator and calling all the resources the hospital had. The hospital can already be a nerve wracking place for parents when their child is sick, and that frustration is only compounded by a language barrier. My encounters with language barriers drew my curiosity to how bilingualism affected

accessibility. I led an Alternative Spring Break service-learning trip to the Rio Grande Valley focused on the social justice issue of bilingualism and its link to higher education. We worked with community partners from the Bilingual Education Institute at the local university, students at a public housing authority, a refugee center and a non-profit housing organization. Through speaking with the locals, I realized how access to healthcare played a critical, intersectional role in our social justice issue. We met a mother in an English as a Second Language program whose frustrating experience with a health emergency during her pregnancy motivated her to learn English so she could advocate for herself. We heard the story of a father who could not get access to cancer treatment because the nearest public hospital was a five-hour drive away; the local emergency room didn't consider cancer an emergency illness due to the lack of resources. Despite their obstacles, I saw their unrelenting passion to improve their community through education, affordable housing and healthcare access. Witnessing this community's spirit revealed how important it is for me, as a future healthcare provider, to be aware of the social issues that affect my patients in order to fully understand and meet my patients' needs.

The deep immersion into culture and values of a community sparked my interest in how culture affects healthcare in a global setting, so I ventured abroad to Copenhagen, Denmark. To my surprise, encountering medicine in a global context enhanced my perspective on the personal aspect of medicine. Through my medical practice and policy course, we practiced clinically diagnosing patients. One afternoon we met a patient who came to the hospital with symptoms of swelling and weakness in his legs. While sharing his family and past medical history, he went on to tell us everything about his life from how he used to live as a musician, his stressful job at an insurance company, and how some family members had passed away from mental illness. He noted that he had rarely gone to the doctor when he was young, yet now he felt helpless in the hands of his doctors. His anxiety with doctors revealed to me the importance for a physician to develop a relationship with their patients based on vulnerability and trust. I realized that my job must be centered around being able to connect with the patient on a human level, not just viewing them as a case to diagnose. In doing so, we center the healthcare around the patient and not the disease, which allows patients to communicate openly with their doctors. This open communication will allow patients to be more in control of their own healthcare decisions.

My path to becoming a physician has been guided by my experiences with communication needs and advocacy. My shadowing and volunteer work highlighted the importance of empathy when reaching out to the medically underserved. Just as my father advocated for his clients so that they did not feel lost in this new country, I hope to be a physician who breaks down the systemic and personal barriers in the healthcare system to serve those in disadvantaged communities so that they do not feel like they have been left behind.

Jessica Weng: Brown '20, Mayo Clinic Alix School of Medicine MD/PhD
MD Personal Statement

My fingers flew up the scale in Mozart's "Piano Sonata in No. 16 in C Major" as I heard a sigh of relief behind me. I had just come back from class, and my grandfather had just come back from another round of chemotherapy. He closed his eyes, and I watched from the reflection of the Yamaha stand-up

piano as the steep lines in his face became a little more smooth with relaxation. He believed that music could help heal him. So, this time on the piano bench also became an important part of his healing journey from disease. The gravity of disease was not as meaningful to me until my grandfather was diagnosed with late-stage lung cancer. I remember my mother's face paling as she received a call from the hospital. Her eyes frantic and face lined with fear, she stood in shock instead of sending me off to the first grade. Catching a few words of the conversation, I asked her if something happened to grandpa; she replied, "he is very sick." In the years that followed, I witnessed the consequences of disease, not just on my grandfather, but on my entire family. He thinned dramatically and was often tired and out of breath. Our calendars thickened with appointments and we were always worried for his health.

Determined to defeat cancer, I spent two years in high school researching therapeutic targets for breast cancer at the Masonic Cancer Center of the University of Minnesota. So focused on the aspect of defeating cancer, I almost lost sight of what helped my grandfather feel better. I yearned to create new therapies and learn as much as I could about cancer as my interpretation of medicine, but medicine is much more than that. As everyone around me worked hard to provide care for my grandfather throughout his journey with lung cancer, I wanted to do something for him too. So, on the piano bench, I performed my entire repertoire many times and spent even more time talking to him. When he suffered from pain, I was glad that my efforts could divert his attention. I realized that care is more than a cure. Besides injections, pills, and surgeries, care also included understanding him and what he wanted.

I continue to share music when volunteering at hospitals in college. At Houston Methodist Hospital, I walk into the rooms with an electric keyboard and speak with patients, their loved ones, and their health care team about their favorite genres of music. During these shifts, I have met former musicians, veterans, children, people who do not speak English, and people who could barely hear but still loved tapping their fingers to a beat. When I played Bach's "Prelude in C Major" for a former musician who had brain trauma, tears welled up in his eyes. But a smile crossed his face. We talked about his family and how much joy he felt hearing one of his favorite pieces even though he could no longer perform. Leaving the room, he thanked me many times and how much more peace he felt. I learned that building these relationships was another form of therapy for patients, and I felt a stronger desire to care for them. His story and happiness further encouraged me to continue searching for paths to heal people. I desired to form trusting relationships with these patients and have the knowledge to heal their physical ailments.

To learn more about healing through medicine, I shadowed a medical oncologist, Dr. Fujioka, at the Clinics and Surgery Center at the University of Minnesota. I saw her work with patients who had complexities of disease and illness on top of cancer; she treated each patient as more than just their physical problems. One patient, an elderly woman diagnosed with late stage lung cancer, was accompanied by her entire extended family. The patient, who had a history of drug abuse, was confused and angry with the physicians for restricting her pain medication. Crying, she lifted her shaking hand from her wheelchair and gestured toward her entire body when describing her pain. Her children and grandchildren hung their heads and cried with her. Even in an emotionally tense situation, Dr. Fujioka was kind and mindful in explaining to everyone why the patient's pain medication had to be restricted even as the appointment extended an hour over time. She also carefully discussed alternative treatment plans and pain management goals with the patient and her family while getting to know the family, asking what mattered the most to the patient and what was important for the whole family. Watching her interact with her patients, I was inspired by her ability and warmth to earn the trust of each and every one of her patients. I learned that this is how I wanted to care for people and how I wanted to practice medicine.

Becoming a physician would mean that I could have the knowledge and training to recommend therapeutics and provide solutions or alternatives for a grandmother who has crippling pain. Becoming a physician would mean that I could care for a grandfather who is suffering from terrible diseases with empathy. Becoming a physician would mean that I could earn the trust of my patients and learn about

their families, loves, fears, and goals. Thus, I desire to dedicate myself to a lifelong career in medicine to impact, heal, and understand the lives of each and every one of my patients.

Secondary Applications

Listed below are a number of example secondary application prompts. This is not a comprehensive list, but should allow you to get familiar with the types of questions secondaries ask. You can find school-specific secondary prompts from previous years (they do not tend to change much) on SDN.

Many applicants find it helpful to “prewrite” their secondaries, i.e. have a draft ahead of time that they can tweak and make more specific for each school. In general, you should submit the secondary application two weeks after receiving an invitation from the school to complete the secondary. Some medical schools, such as Dell, have a video essay for a secondary. These are some common prompts that you should have in mind:

1. Please discuss one of the following:
   - a challenging situation or obstacle you have faced in the past
   - any academic road bumps in your academic career (low academic performance, failing courses, dropping/retaking of courses)
   Why was it challenging? How did you handle it? Knowing what you know now, would you do anything differently? What did you learn?
2. Describe a time or situation where you have been unsuccessful or failed. What did you learn from this experience and how have you applied this learning to your work and/or life?
3. What would you like to contribute and be remembered for in medicine?
4. Please describe what you would see as the "ideal" practice for you. (Where, what type of practice - clinic, hospital, specialty, who would be your patients, etc.).
5. Have you experienced any hardship or adversity, personally or professionally? How did COVID impact you?
6. Describe your experience(s) working in teams and articulate the impact of this experience on you. In particular, how did you manage any disagreements or conflicts that arose in the process?
7. List the area (or areas) of medicine that appeals to you and briefly explain.
8. Standard "this is our mission, why are you a good fit for us?" question

Video Secondaries / One-Way Interviews

Some schools, such as Dell Medical School and Long School of Medicine, conduct one-way video secondaries. The AAMC’s new VITA system is similar. In these secondaries, a prompt is

given, and you have thirty seconds or a minute to think about a response before the camera begins recording.

For these, it is important to be prepared for the standard interview or secondary questions ahead of time and have a general idea of the experiences that you want to talk about. It can be helpful to have a notepad to jot down ideas nearby, since you do have time to think - but be very wary of reading directly off of your notes. Since it is a video, dress professionally. In addition, it is important that your computer software and WiFi are good - you will need Adobe Flash and a strong internet connection.

CASPer

This is a situational judgement exam (always administered online) that is utilized to assess applicants' interpersonal skills and ethical reasoning. It consists of 12 sections with scenarios, and each scenario has three associated questions where you type in your own answers. CASPer is scored, but applicants do not receive their own scores. CASPer costs $12 per school in addition to the $12 flat fee.

Not all schools require CASPer - check with each individual school to see who requires it. Some medical schools also require CASPer and do not use the scores to make admissions decisions - they are just using it as a data tracking point. However, many schools will require that you take CASPer before you receive an interview invitation, so it will make your cycle faster if you take it earlier (May-July).

Do not stress too much about CASPer. There is a practice exam available online through the company for free, which is worth taking to familiarize yourself with the format, but you should just aim to answer honestly and thoughtfully for every question. The most important aspect is to improve your typing speed - there are many questions to answer in a limited time span.

CASPer rolled out a new feature named "CASPer Snapshot" which is not required or recommended or used to make decisions by any medical school as of yet. You do not need to complete the snapshot.

The AAMC's Situational Judgement Test (SJT) is similar, and new for the 2020-2021 cycle.

Medical School Interviews

Each medical school differs in their approach to the interview process - some may be conducted by medical school faculty members, while some may be conducted by members of the admissions committee and upper-level medical students. Schools also vary with respect to the interview format. The most traditional interview format is the one-on-one interview, however, newer formats such as the multiple mini interview (MMI) are becoming more common. Below are examples of the types of interview formats for US and Canadian medical schools:

Closed File-Traditional Interview: A one-on-one interview in which the interviewer does not have access to your application materials, GPA, or MCAT (may have access to essays). The purpose is to assess your communication skills.There is no way to predict what you will be asked, but you should be prepared to answer common questions about motivations for becoming a doctor, community service, research, or other activities.

Open-File Traditional Interview: A one-on-one interview in which, unlike the closed-file, the interview does have access to all your application materials. Preparation for the interview is similar to the closed-file, except that candidates should be prepared to answer questions about poor performance on any courses or red flags on your academic record. Be honest and talk about circumstances which may have led to your poor performances and why they are no longer an obstacle.

Panel Interview: The candidate meets with a “panel” or group of interviewers at the same time (likely medical students or faculty from clinical and basic science departments). Be prepared for similar questions that you may be asked in a one-on-one interview. Additionally, be sure to address each interviewer, not just the one who is the most senior or who is asking the most questions. Keep in mind that each panelist brings a slightly different perspective to the interview and it may be helpful to answer each question directly, but to also build on your answer with examples which address the perspectives of other interviewers.

Group Interview: One or more admissions officers will interview a group of candidates simultaneously. The purpose is to determine how well you work with others, assess your leadership qualities, and evaluate your communication skills. In addition to answering similar questions as one-on-one interviews, candidates may also be asked to work together to solve a problem collaboratively. Strong qualities which stand out include being a good listener, confidence, treating others with respect, and including all group members when formatting responses.

Multiple-Mini Interview (MMI): Consists of 6-10 stations which are built around a specific question or scenario. The stations or “mini interviews” usually consist of a two-minute prep period during which you are given a prompt and are allowed to reflect on your response, followed by 5-8 minutes to discuss your answer or play out the scenario with the interviewer. Stations may consist of interactions with standardized patients, essay writing stations, traditional interview stations, ethical scenarios, or teamwork activities. The purpose is to assess your interpersonal skills, communication abilities, and capacity to think critically about ethical

problems. Unlike traditional interviews, each MMI question or scenario is preceded by a short reflection period.

Online Interviews: For the 2020-2021 application cycle, many, if not all, interviews have shifted to a virtual format to accommodate the COVID-19 pandemic. Many schools are still attempting to do a full slate of activities, starting with an informal meet-and-greet online the night before, followed by an interview day full of panels, tours, and of course, the interviews themselves. These interviews should be treated exactly the same as in-person interviews would be.

Preparing for Your Interview

- You can do as much or little preparation as you want. Here are some suggestions for what to do before each interview (or at least before you go on your first interview):
- Buy a suit or proper attire. See “Attire” section below. (We really, strongly suggest this.)
- Read the interview feedback postings on the Student Doctor Network. At this website, applicants who have already visited the school give their impressions of the campus,
- how to travel there, and example questions that they were asked during the interview.
- Read the school’s website and MSAR listing.
- Write out several (more than five) questions to ask your interviewer; research your interviewer ahead of time to prepare. At the end of each interview session, your interviewer will ask if you have any questions. Be ready.
- Read over your AMCAS application and your secondary essays. Since interviews are typically held many months after you apply, you may be asked a question about something that you do not remember very well.
- Know your research - you will need to be able to describe everything, in detail, especially if you’re interviewing with an expert in that particular field.
- Conduct a mock interview with CCD
- Sign up for a frequent flyer program. You will have to do a lot of traveling over the next few months. You might as well get some rewards for all of the money that you are about to spend on plane tickets and hotels.

Usually students are left on their own to make travel arrangements to get to campus. The majority of universities hold interviews early in the morning. Therefore, you will be required to fly in the day before and spend the night in the city. For Texas schools, you can obviously use ground transportation - we have a decent Megabus system between big cities, and it’s helpful if you have your own car.

Although many applicants stay in hotel rooms, staying with a medical student host is typically the best option. In addition to the room being free, these hosts are a great resource for learning more about the school. A few will even take you out to see the city and meet with other current students. Many also offer advice on the interview that you are about to undergo. Even if you are not staying the night with a medical student, many schools offer pre-interview meet-ups as a chance for you to meet some of the MS1s and fellow applicants. Take advantage of this time to get acclimated, relax, and make some friends.

The Interview Day

Since every school has a different setup, there is no telling what to expect everywhere (the best way to find out about a particular school is to browse Student Doctor Network Interview Feedback). Whatever happens, you should use proper interviewing technique: do a quick search to find out how you should address the interviewer (are they a physician? A student? How do you pronounce their name?), shake hands firmly, sit up straight in your chair, make eye contact the whole time, and match the mood and speaking rate of your interviewer. Use the first few minutes of the interview to get a sense of what the interviewer is looking for; some interviewers are more interested in a relaxed conversation, while others may have a more serious, goal-oriented mindset.

Take advantage of these interviews to go beyond what you said in your file; use these interviews to add something new and fresh, something you may have done since you applied. The timing of interviews is not standard: some are 30 minutes long—barely enough time to scratch the surface—while others are a full hour, giving the interviewer ample time to learn enough about you to make an informed decision about your personality.

Questions Asked on Interviews

Though interview questions cover a wide range of topics, do not stress. Contrary to popular belief, few interviewers ask any “difficult” questions; rather, they ask normal, conversational questions. The interviewers are generally very cordial and want to know who you are. You may get some odd questions, such as, “Is the world getting better?” or “Can you type?” or “How can you solve the issue of overpriced healthcare?” You may also get some hypothetical ethical scenarios about medicine; this is where it’s good to be well-read and informed about current issues in healthcare. But, most interviews are very straight-forward. Keep in mind that it is practically a guarantee that you will get asked the following three questions:

- Why do you want to become a doctor? / Why medicine?
- What type of medicine do you envision yourself practicing?
- Why this school?

To answer these and all other questions, you must evaluate why you want to go to medical school and what impact you think you can make on others. A good way to remember how to answer questions is the STAR acronym - situation, task, action, results. It’s helpful to answer the question and highlight experiences that demonstrate or exemplify what you are trying to show. All of your experiences and answers should also connect back to medicine.

Here are some other common questions you should be prepared to answer:

- Tell me about strengths/weaknesses.
- Tell me about your research.

- Tell me about a time you have demonstrated:
    - Teamwork
    - Leadership
    - Integrity
    - Failure
    - Stress
- What is the most important issue in medicine and healthcare today in your opinion?
- What do you do for fun?
- What are you doing during any time off/gap year(s)?
- How have you contributed to your community?
- Medical Ethics: read up on issues in healthcare today (gene editing, COVID pandemic, the ACA, abortion, etc.) and form an informed opinion. The interviewer should respect your opinion - just make sure you can back it up thoughtfully.

In general, though, the best preparation for answering these questions is to not stress out—just be yourself. For those of you who feel comfortable speaking about personal matters with strangers, you're golden. For the others who are less comfortable doing so, feel free to practice on your friends and family, and especially with mock interviews offered by the CCD and the OAA; they'll give you feedback, let you know what they think you said, and give you a chance to reflect more on your life and refine your answers.

You can appeal your interview if you think it was unfair; this is for situations where the interviewer asked personal questions that they are legally not allowed to use in their decision making. Examples of this include asking about your personal relationships/marital status or plans, or plans to have children. The interviewer should not ask questions such as these.

Questions You Can Ask Your Interviewer

The interview is not just the school's chance to evaluate you; it is also your best shot at determining if you want to spend the next four years there. If you can, take a look at the match list to see what specialties are common amongst graduates. Think about the area of the country the school is in. Can you cope with the region's weather? Talk to current students about their opinions of the university. Ask your interviewers about the advantages and disadvantages of attending this particular institute. At the end of the interview, you will be given time to ask the interviewer questions. Some starter questions are:

- How much flexibility is there in the coursework and in the timing of the courses? If I want to pursue a dual degree, will there be coursework accommodations?
- What are some advantages / disadvantages of your school?
- What kind of representation do students have on school committees?
- What kinds of clinical opportunities are available during the first two years?
- How can students evaluate the faculty? How much impact do student opinions have on curriculum structure?

- Can you describe the patient population that I will have exposure to?
- What do you wish you had known prior to coming to this school?

Don't be scared to ask a question. Do your research on the school (website, SDN, MS1s, friends who have interviewed), but if there is something that concerns you or you are curious about, voice it. Questions show interest - it's also a big red flag if you do not have any questions.

The question period is also a good time to highlight anything about your application that you felt like was not brought up in the interview. You can do this by briefly explaining your interest/skill/experience, and ask what kind of opportunities there are at the medical school to explore that further. Don't do this for every question, though - it will become very obvious.

Attire

You should dress conservatively. Period. You want to be remembered for what you say, not what you wear. Honestly, everyone looks the same on interview days: suits, suits, suits. Everyone should wear a navy blue, charcoal grey, or black suit; don't go wild with suit designs here. Every person should have a blazer on regardless of gender - no exceptions (thrift shops, Goodwill, and even the CCD can help out with finding cheap ones). All clothes should be pressed. Your tie should be either a solid color or have stripes—no cartoon characters here. You should be clean-shaven or make sure that everything is neatly trimmed if you have a beard. If you wear a skirt, it should be long enough to hang down to (or extend past) your knees. Also, avoid flashy jewelry, heavy makeup, and heavy perfume. Realizing that you will have to do a lot of walking, so wear comfortable pumps with a low heel; do not wear open-toe or open-back shoes. If you have heels, it may be a good idea to bring professional flats in your bag to change into for the tour to be more comfortable.

For everyone, turn off your cell phones. As much as you would like to believe that this rule is a no-brainer, several people have had phones ring during an interview. The situation is embarrassing and shows the interviewer that you are careless. Also, you can buy a black portfolio folder with the Rice logo at the bookstore to keep papers (everyone on interviews has something of this nature that holds their notes, pamphlets, and other papers). Watch the weather too - nothing worse than showing up to an interview soaked because you forgot an umbrella.

Tours

A campus tour is generally given by a current medical student. You will not see the main campus or undergraduate area, however. You will only see the medical school's classrooms, research labs, affiliated hospitals, gym and sometimes the anatomy lab.

The good news is that although you have probably spent hundreds of dollars just to get to this stage of the application process, the interview day is free. Those secondary application fees go towards providing interviewees with free lunches and often free parking.

Keep this last bit of advice in mind: from the moment you arrive in your host town, you should consider yourself on the interview. Everything from the hotel room, host stay, campus tour, dean's message—everything and every minute—should be considered an interview. Be nice to the secretaries—they have the admissions committee's ears. Brush up on your manners and treat everyone as though they have the power to accept or reject you; you never know, they just might!

Application Advice: From a physician on the Admissions Committee

> "After 28 years interviewing candidates for UT Houston (now McGovern) I can say I think [my personal statement] was what some of us called "the usual drivel" - meaning I've always liked science and wanted to help people. Ideally there are things that will spark conversation or make you memorable - it is going to set the interview's tone. This is the applicant explaining why they want to be a doctor and how they have arrived at that choice and what skills, traits and ideals will bode well for being a doctor.
>
> - Talk about meeting or shadowing a doc you want to be like. Do NOT talk at length about bad experiences with doctors unless you can then identify one that was excellent.
> - Talk about events that show you have compassion.
> - Discuss your exposure to US vs other countries health care systems if you've been exposed to them.
> - Get multiple people to read and critique your essay- especially MDs or premed advisors. Family can check spelling and grammar, but those of us in the med school world can make sure that you aren't inadvertently saying something offensive.
> - Know something about different types of specialties and also how medicine can be practiced - surgical fields vs internal med/pedi based vs "non-patient care" like radiology, pathology, radiation oncology. Practice settings can be hospitals, private practice, public sector clinics, concierge practice, etc.
> - Discuss things you learned from other people.
> - DO NOT REHASH YOUR NUMBERS - grades, MCATs, etc - we get those from the system printouts and some schools are trying to decrease the focus on these since grades do NOT predict who will be a great doctor.

- PROOFREAD- typos and misspellings are dreadful. Count your personal pronouns - I, me, mine. Large numbers suggest narcissism and lack of social skills.
- It is illegal for a school to ask your relationship status or your plans for procreating. Do not volunteer this info! They also cannot ask how high you plan to rank them. If they hint at this, always say “I would love to attend med school HERE”.
- Saying “I’m only applying here as a fall back in case I don’t get into Harvard” will get you a guaranteed non acceptance at that school.”

-Dr. Kathy Cowan, Hanszen ’78, UTMB

The Cost of Applying

Applying to medical school will probably cost you a large sum of money. The overall price of your application process will largely be determined by how you prepare for the MCAT and the number of schools you apply to.

Common Expenditures	**Cost**
MCAT Prep	$2,500 (In-person course) $150 (Books) $300 (AAMC Practice Bundle)
MCAT Test Fee	$320
Rice Open File Fee	$100
CASPer Test Fee	$12 (per school sent) $12 (base fee)
MSAR (Med School Database)	$28
TMDSAS Application Fee	$185
AMCAS Processing Fee	$170 (base) $41 (per school designated)
Secondary Application Fees	$~75 (per school)
Interview Transportation/lodging*	$~700 (in-state) $~2,500 (out-of-state)

*Values vary significantly depending on location and number of interviews

While the values above contain general estimates of common expenditures, the cost for a particular applicant can vary widely. For example, an applicant interviewing for 5 Texas schools could spend thousands less than an applicant interviewing for 10 schools across the country.

If these costs seem prohibitive, there are resources available to help those with demonstrated need.

AMCAS Fee Assistance Program

Benefits

- MCAT Prep Online Bundle
- Reduced MCAT registration fee ($130)
- MSAR subscription
- AMCAS Fee waiver (up to 20 school designations)

This program determines need based on the US Department of Health and Human Services poverty guidelines. You are eligible if both your and your parents' household reported a total family income less than 400% the national poverty level. Under extreme conditions, a parental estrangement form can petition to eliminate the need to report a parent's income. Only US citizens, nationals, lawful permanent residents, refugee or asylum status holders, DACA recipients and those waiting for refugee or asylum status and have an EAD card are eligible. This program cannot be applied for retroactively. This can also apply to TMDSAS schools.

Applications are processed through the AAMC website.

Research

How does research support my application?

First, research, especially wet lab research, is not a requirement to matriculate into most MD programs. Plenty of applicants can show off their academic and critical thinking skills through other activities. However, having a solid research experience on your application does provide medical schools with insight into your tenacity, learning capabilities, and critical thinking skills.

Potential Benefits of Research Experiences

- Shows an interest in the molecular foundations of medicine and intellectual curiosity
- Sustained endeavors exhibit dedication, patience, and motivation
- Allows you to network with PI's, professionals, and graduate students
- Good research mentors can write excellent letters of recommendation

- Papers, presentations, and research awards are among the few achievements that can stay on your CV after graduation

The key goal of undergraduate research is learning **if research is the right path for you**. Even if you don't produce a finished product or decide that you don't want to pursue research in the future, your goal as a student is to learn. Medical schools will care that you grew during the process.

Tips to having a fulfilling research experience

- *Show Up.* This might sound obvious, but make the effort to be in lab regularly and interact with others. Mentors will notice if you aren't.
- *Be inquisitive.* Ask questions about everything you do and everything else going on in the lab.
- *Work hard*. Mentors notice eagerness and reflect it in your responsibilities and letter.
- *Raise suggestions.* Everybody's ideas start bad. As you learn more, you'll contribute more and that's all anybody expects.
- *Be careful and slow*. Do not try to do too much at once. Better to do a good job than a cursory and inconclusive one.
- *Learn to communicate your work.* Ask your mentors how they would pitch the project. Being able to tell others about your work is a sign your experience was meaningful.
- *Bring some cheer*. Labs like undergraduates for our energy and excitement. Make everyone else in your lab feel young again.

Not all research is wet lab biology research. There are plenty of research opportunities in the humanities and social sciences. A poster on imposter syndrome with the psychology department will be well-regarded by medical admissions, even without hours pipetting. A paper analyzing representations of mental illness in medieval Europe definitely shows intellectual curiosity and an interest in medicine. While many pre-meds will stay within the biological sciences (and there's nothing wrong with that), don't feel obligated to.

How do I find research opportunities?

For traditional biology or medical research, the most important step in pursuing research opportunities is finding a good lab. These can either be at Rice, in the medical center, or elsewhere. However, finding a good fit will help you learn more and gain the most out of your experience. (These tips can also be used to find research opportunities in general, not just in STEM).

RPMS also has a research database with opportunities at Rice and in the TMC.

Ways to find a lab/research opportunity:

- Go through an institution's website and read about the work faculty are conducting. Use this as a first step to find potential labs.

- Ask upperclassmen and graduate student TAs about labs. Upperclassmen engaged in research can help recommend you into labs and provide first-hand knowledge of how undergraduates are treated by certain PIs and mentors. Graduate student TAs are associated with research faculties. They can also be resources to get a foot in the door.
- Additional ways to hear about research opportunities include:
    - Department and club listservs often advertise research or have databases of labs
    - Rice professors sometimes mention their own work during class. Even if a professor doesn't offer opportunities, feel free to go ahead and ask if they'd be open to having you in their lab.
    - Some opportunities are offered on Rice Jobs, Handshake or other job sites.
- Contact labs by cold emailing Primary Investigators
- In your email, talk about what specific aspects of their research you find interesting. Talk about why it excites you. Include your resume, especially if you have similar activities.
- Ask to meet with PI's of labs. In-person meetings demonstrate your interest and allow you to gauge their interest in being a mentor. Even if a professor hasn't responded, consider stopping by their office and asking politely if they have 10 minutes to chat.
    - Tip: Do your homework on a lab ahead of time! Come prepared with questions about a PIs research, recent papers, future plans, etc.

Ultimately, it may take many unreturned emails and rejections to find a lab, but don't get discouraged. There are opportunities! Keep pushing and you will find something for you.

Things to consider when choosing a lab:

- Make sure you find a PI that is **invested in your education**. As an undergraduate, you are there to learn first and work second.
- Do **not** take a research position where your responsibilities only include washing materials for general lab use or prepping samples for everyone else. If you have no opportunity to gain skills, it's not worth your time. There are other labs that want you.
- Do you want to do clinical or basic science research? This can filter your choices.
- How large of a lab do you want? Smaller labs can mean more individual attention, while established labs have greater opportunities for funding.
- Are there other undergraduates there? This can be a sign PIs are willing to take on and mentor undergraduates. Research can be lonely/intimidating and buddies can help.
- How much time do you have to devote to this research? How much time does this research take?
- Will you earn class credit/pay? Don't be afraid to ask for compensation!
- What is the possibility of success of the project? Will you be able to present your work or take part in writing a paper? These aren't essential, but are valuable learning experiences.
- It's okay if you don't end up liking or clicking with your first lab - learn from the experience, and move on and find another lab that you will fit better with.
- Most importantly, find a lab that you **enjoy**, with people you like and respect and who also respect you.

Basic Science Research	Clinical Research
● Medical center or Rice campus ● Can still hold clinical relevance ● Undergraduates can achieve greater independence ● Many endeavors fail to get worthy results	● Medical center ● Possibility of patient interaction ● Limited independent experimental design ● Less potential for no worthwhile results

Campus Labs	Medical Center labs
● Limited opportunities to get paid ● Mentors are often kinder to undergraduates ● Easier to make contact with ● Fewer faculty members to choose from	● Greater chance for paid research ● Mentors often have limited time to spend with undergraduates ● Greater diversity of research options

The MD/PhD Pathway

For applicants with a strong research background and a desire to pursue a future research career on top of clinical responsibilities, combined MD/PhD programs exist. These programs aim to develop physician scientists through an integrated graduate school and medical school training. The hope is that physician-scientists with training in both clinical and research areas will integrate scientific knowledge with medical practice, advancing medicine while bringing new insights to the laboratory.

Medical Scientist Training Programs (MSTP) are National Institutes of Health (NIH) funded MD/PhD programs that are among the most prestigious in the country. These fully funded 7-9 year programs pay for medical education, PhD funding, and provide a stipend (30-40k) during training. As of 2020, there are 50 MSTP programs, with an average of 8 students per program, and many more MD/PhD programs. These non-MSTP programs can also offer partial or fully funded offers depending on the school. Overall there are perhaps 700 slots for dual degree programs, with 400 or so for MSTP.

Qualities of a good MD/PhD applicant

- Strong coursework in the area of interest for PhD
- Substantial research experience (2+ years)
- Publications and presentations (not required, but certainly don't hurt)
- **Strong letters of recommendation from research mentors**
- Average MCAT all programs (516)
- Average Science GPA (3.77)

At the end of the day, the most important quality of a MD/PhD applicant is a desire for a research career (free med school is not a good reason to apply). Do not let superficial factors such as scores, extracurricular activities, or even years of research make your decision for whether to apply to MD/PhD programs. If you are truly committed to this field, you will be considered fairly for your determination, insight, and potential for success in research.

Applying to MD/PhD Programs

Almost every MD/PhD program in the United States utilizes the AMCAS system. Even Texas schools such as UT Southwestern will require students to submit an application through AMCAS. (However you will be required to submit a TMDSAS application to be considered for their regular MD program also.) As a result, the primary application for MD/PhD programs is similar to the MD application with two additional essays. The first is a "Why MD/PhD" essay. The second is a significant research essay, where applicants have 10,000 characters to describe their research experiences chronologically. You can see examples at the end of this section from Jessica Weng (Brown '20, Mayo Clinic Alix School of Medicine).

You do not need to approach every essay from a physician scientist perspective. There is value to knowing your audience. For example, the normal personal statement's audience will be primarily the medical school, while the significant research essay will be more critically evaluated by the graduate school.

Letters of recommendation

The biggest difference between primary MD and MD/PhD applications is the number of letters of recommendation. MD/PhD programs often allow for significantly more letters, and it is not uncommon for applicants to submit eight letters. This is to allow applicants to request letters from all their research mentors, and some programs require letters from all PIs the applicant has worked for. The letter from your most significant research experiences carries great weight. However, more is not better. A weak letter can be a serious red flag for programs, so make sure each letter has strength and purpose.

Interviewing for MD/PhD Programs

MD/PhD interviews often occur later than MD interviews and many programs set aside three or four weekends specifically for this purpose. The majority of programs will provide hotel accommodations, meals, and sometimes even airfare. Lasting 1-3 days, they often include half-hour or hour-long interviews with 4+ faculty at each program on top of the regular ~2 interviews for MD applicants.

Tips for MD/PhD Interviews

- Submit lists of faculty you are interest in speaking to (if the program allows for it)
- Gain insights about the program from current MSTP students
- Switch gears to medicine when interviewing with the MDs (they need to accept you too)
- Read up on your interviewer's research. Having an intelligent conversation about their work is great, linking your own work to theirs is better.
- You don't need to know everything! Show your eagerness to think about diverse questions and to hold an intelligent conversation. Show them your thinking process.
- Know your own research well. Read up on the foundational papers that your field.
- Communicate your research at a basic level first (they will ask for more details later)
- Have fun! You get to meet and converse with some of the top researchers in your field

Jessica Weng: Brown ’20, Mayo Clinic Alix School of Medicine MD/PhD
PhD Personal Statement

“Grandma, how does blood flow upwards?” Questions from my five-year-old self interjected my bedtime stories as my grandparents, medical school professors in China, traced the pathway of a blood cell. Thus began my interest in the human body. My “how,” “why,” and “what’s next” questions became a thirst for scientific knowledge. I enrolled in middle school STEM camps and interviewed scientists. In high school, my curiosity led me to work in a breast cancer laboratory at the University of Minnesota. Soon, my breaks were filled with reading papers, conducting assays, and performing data analysis. My work even garnered recognition at international science fairs, but my questions never stopped as my love for research only grew.

This passion brought me to Rice University, where I continued to pursue questions that interested me. I worked in an antibiotic resistance research laboratory at Rice, trying to understand how organisms evolve under stress. While participating and leading my own projects confirmed my passion for intellectual pursuit, however, shadowing physicians drew me to academic medicine.

In the summer 2018, I had the opportunity to conduct research through the University of Minnesota pre-MSTP summer research program. I researched immunotherapy drugs that could enhance natural killer cell function against tumor cells in a translational laboratory. There, I also had the opportunity to shadow an oncologist who was on the clinical trial team. I saw patients suffering from cancers that became resistant to conventional therapies. I also saw the process of translating science from bench to bedside and vice versa including the application of increasingly precise medicine. In fact, the novel immunotherapy drug the oncologist was offering to her patients was developed in the laboratory in which I was working. When I witnessed tumors responding well to the new therapeutic options the lab developed, I yearned both to directly contribute to patients’ well-being and to understand scientifically how their diseases evolved.

From these interests and experiences, I developed two convictions about research and medicine. First, patient interaction and patient data inspire the direction of research that addresses diseases. The antibiotic resistance laboratory at Rice often collaborates with a translational research laboratory led by Dr. Cesar Arias at McGovern Medical School, a physician-scientist who sees and treats the same patients from whom he obtains research samples. His work instills him with an urgency to understand antibiotic resistance and develop new drugs to combat it. Second, the rigor of the PhD program will enable me to pursue intriguing and difficult translational research and answer questions that could lead to new clinical therapies. Thus, my education and career goals include obtaining an MD/PhD dual degree because I am passionate about healing patients by solving the mechanisms of the underlying diseases.

Jessica Weng: Brown ’20, Mayo Clinic Alix School of Medicine MD/PhD
Research Statement

Committing myself to scientific research has instilled an appreciation for the effort and results that go into research as well as the drive and passion for the investigative process. My first taste of research began with a search for a laboratory in high school, driven by academic motivation to discover the underlying mechanisms of cancer and the personal motivation of my grandfather’s journey with cancer. I was given the chance to conduct research at the Masonic Cancer Center at the University of Minnesota with Dr. Douglas Yee after fourteen interviews. Dr. Yee encouraged me to do research on resistance pathways in breast cancer cells. The gene of interest, APOBEC3B, codes for a deaminase that is frequently expressed in breast cancer and may cause somatic mutations commonly seen in cancer. Clinically, APOBEC3B may contribute to heterogeneity in breast cancer and could be considered as a clinical or therapeutic target. From October 2014 to November 2015, I worked with a research scientist and hypothesized that the expression level of APOBEC3B could contribute to how quickly resistance to

different therapies develop. This period allowed me to master important research techniques such as cell culture, cell counting, qRT-PCR, Western blotting, IC50 assays, and a number of cell proliferation assays. In my project, I evolved estrogen-receptor positive breast cancer lines to tamoxifen and 5-fluorouracil and analyzed APOBEC3B expression levels to resistance levels. This project provided valuable opportunities to take initiative in investigating my questions, gain confidence in bench skills, and synthesize and present my research. My work on this project garnered recognition as an INTEL Science Talent Search semifinalist, an INTEL International Science and Engineering Fair finalist, and the two-time winner of the Minnesota Department of Education Scholar of Distinction: Science.

At Rice University, I looked into continuing my passion for scientific inquiry; I reflected on what questions interested me and desired to learn how cells evolved under stress to resistance. I successfully applied to Dr. Yousif Shamoo's laboratory in the Department of Biochemistry at Rice University in September of my freshman year with funding from the University as a Century Scholar, for which I received a merit scholarship and a research stipend. My project was on identifying resistance mechanisms of Nocardia to Trimethoprim-Sulfamethoxazole (TMP-SMX) under the mentorship of a postdoctoral fellow. Studies had shown that Nocardia, an emerging pathogen, was developing resistance to TMP-SMX, the drug of last resort, in hospitals around the world. To investigate the resistance mechanisms, I used microbiology and bioinformatic techniques to analyze the developed mutations after evolving N. nova and N. cyriacigeorgica strains to TMP-SMX. I built genomes of the nine strains, compared the evolved genomes to the ancestor genomes, and annotated the mutations found on the evolved strains. During the summer 2017, I participated in the NSF BioXFEL REU and continued my work with Dr. Shamoo at Rice University while engaging in professional development and presented at the Rice Institute of Biosciences and Bioengineering Symposium. Besides mastering new scientific techniques and becoming more independent in research, I also wanted to improve communication of my research while interacting with other experts in the field. With my Nocardia work, I presented at two Rice Undergraduate Research Symposiums; Stanford Synchrotron Radiation Lightsource (SSRL) and the Linac Coherent Light Source (LCLS) Users' Meeting; Texas Medical Center Antimicrobial Resistance and Stewardship Conference; two SACNAS Diversity in STEM conferences, where I won a presentation award in microbiology and a travel scholarship; and the Gulf Coast Undergraduate Research Symposium, where I won the best oral presenter award. Continuing research in my sophomore year, I eventually co-authored a paper published in the American Society for Microbiology Journals: Antimicrobial Agents and Chemotherapy. Having these experiences and opportunities greatly improved my ability to communicate and exchange innovative ideas with peers and mentors.

In order to learn more about the translational side of medicine and the direct impacts of biomedical research, in the summer of 2018 I participated in the NIH Life Sciences Summer Research Program pre-Medical Scientist Training Program mentored by Dr. Jeffrey Miller at the University of Minnesota Masonic Cancer Center. I worked with an MD/PhD student on an IL-12-based Trispecific Killer Engager to enhance natural cell function against myeloid leukemia. Natural killer cells are important mediators for tumor surveillance and prevention because they can kill by direct cytotoxicity and contain broad activating and inhibitory receptors. The three arms of the IL-12-based Trispecific Killer Engager activate CD16, target CD33 on cancer cells, and activate the natural killer cell. In this tumor immunology laboratory, I tested and analyzed the efficacy of different synthesized drugs against myeloid leukemia lines by developing proliferation assays and analyzing the data using flow cytometry. With the results of this project, I presented at the University of Minnesota Summer Undergraduate Research Expo and the American Physician Scientist Association South Regional Meeting. From this experience, I learned of the direct impacts that research and clinical care have on each other. For example, I often used patient samples for my assays. During my meetings with Dr. Miller, we also discussed the detailed process of bench-to-bedside and drug development. Even more inspiring, I witnessed products from the laboratory being offered to patients in clinical trials.

Back at Rice University for my junior year, I wanted to become more creative and lead my own project. Accepted into the Rice Undergraduate Scholars Program with funding and the Biochemistry and Cell Biology honors thesis program, I worked to investigate mutS hypermutators in competition. Hypermutators have mutations in DNA replication or repair such as the mutS gene. The hypermutator phenotype is often found in antibiotic resistant bacteria and some hereditary cancers. My goals were to mutagenize the mutS gene and expose the co-cultured mutants to no, low-level, and high-level selection to discover how hypermutators evolve to different levels of selection. In this project, I learned to design oligonucleotide primers, homologous recombination via lambda red, electroporation, Gibson assembly, and many other techniques. Besides learning new techniques, as with any research project, I also learned how to deal with the many inefficiencies in creating my products. Through reading articles, communicating with mentors, and conducting troubleshooting experiments, I worked with determination and creativity to solve many of the blocks in my project. With my program and commitment to research, I found myself working in the laboratory 20 hours/week, writing a mock NIH F31 grant proposal, and defending my thesis. These experiences have solidified and matured me as a research scientist.

As a researcher, it is also important to understand context and synthesis of materials from a variety of sources. Research is drawn together like a story. Due to my interest in healthcare policy and history as well as my interest in improving my story-telling skills in research, I took a health humanities practicum class fall 2018 in which I completed an independent research project in my internship with the Woodrow Wilson Research Center under the mentorship of Dr. John Mulligan. I wanted to learn about how healthcare policy in the 1950s was formed and how the expansion of some programs in this important decade affected how Americans view healthcare policy to this day. The online exhibit I created explores the impact of Oveta Culp Hobby during her time as the first Secretary of the Department of Health, Education, and Welfare from 1953 to 1955. Oveta Culp Hobby had many roles as a public figure in the city of Houston and in the U.S. I explored how Hobby was a diligent and effective administrator, someone who left a legacy of running a successful bureaucratic administration through thorough research, pushing for public health, compromise on education building, and expansion of social security. I examined the motivations and implementations of the legislations and programs Hobby supported or proposed. I learned how to read primary resources, draw information from secondary resources, and manage my time effectively balancing this project and my honors thesis project. From this research experience, my story-telling skills greatly improved, and I learned the importance of presentation of materials to a wide audience.

In the summer 2019, I desired a diverse experience in research with people of different cultural and training backgrounds. Thus, I identified a laboratory at ETH Zürich, a university well-known for its robust microbiology consortium, to do research with funding from the Wagoner Scholarship and the ThinkSwiss Research Scholarship. Under Dr. Martin Ackermann's mentorship, I have hypothesized that the gut environment shapes the virulence of Salmonella enterica. This project hopes to address how the microbiota affects S. enterica virulence gene expression. I will quantify S. enterica growth and virulence gene expression under dynamic, physiologically-relevant conditions by using microscopy, microfluidic, and image analysis techniques to complete this project while having the opportunity to work with brilliant scientists from around the world of different backgrounds who are all passionate about research.

Other Dual Degree Programs

MD/MS (Master of Science): Many universities offer an MS degree through the medical school. This can be a great path for students with a specific research interest. Typically, students complete 2 years of medical school, then 1 year for the master's program before completing the last 2 years of medical school.

MD/MPH (Master of Public Health): This degree provides knowledge of public health issues that can aid in future research, policy, or advocacy. Admission is typically during the second year of medical school, and students start at the school of public health after their second or third year. Some programs will allow you to apply to the MPH program at the same time as the MD application, and some will ask that you apply after you are admitted to the MD program. These programs can be four or five years.

MD/MBA (Master of Business Administration): While most students are interested in serving on a hospital executive team, this degree can be very useful for those interested in running a private practice. It is very important to note the difference in application. You must take both the MCAT and the GMAT, and be sure to take prerequisite coursework during your undergraduate years. Some business schools also have different requirements and preferences, so make sure to consider those early. Typically, you would apply to this dual degree when in medical school, but some schools will ask that you apply at the same time that you apply for MD admission. Every school is different!

MD/JD (Juris Doctor): This degree is best suited for those who are interested in government and policy, or forensic medicine. As you will be applying to both medical and law school, you should take the LSAT and MCAT. Since this degree is difficult, it typically requires special arrangements that should be discussed with admissions committees. Generally, applications are in the first or second year of medical school.

Summer Internships and Study Abroad

While studying abroad as a pre-med is attainable, you must plan in advance when you will take it, as if you study abroad during a fall or spring semester, you must ensure you can still graduate on track. Additionally, it is highly recommended not to take any prerequisite courses abroad, so make sure you plan around those. Work with a transfer credit advisor and your study abroad liaison so you know that your credits will apply towards your degree.

Summer study abroad programs are generally the best option because you will not miss any required courses during the school year. At Rice, contact the Study Abroad Office, and attend the annual Study Abroad Fair featuring programs from around the world or some of the Study

Abroad Brown Bag Lunches. Most programs are partnered with Rice, but there is one that is directly connected with Rice (taught by both Rice and partner university faculty):

- *Rice in Country*: sponsored by the Center for Language and Intercultural Communication (CLIC), students study abroad in a country for 6 weeks at the beginning of the summer, earning 6 credit hours in the target language while staying with a host family (must have taken a year of introductory language or be placed into the second year course). This also counts towards the study abroad requirement for a language certificate.

If you are a biochemistry major or minor, join the BCB Opportunities site available on Canvas. Research opportunities are often posted for the Texas Medical Center and at Rice, as well as for summer programs (like SURPs).

Rice offers a Health Professions Fair every spring. During this you can meet with representatives from medical schools, colleges of pharmacy, optometry programs, and more. The fair is open to all interested students.

During summers, many universities around the nation offer paid summer internships for undergraduates. You can find comprehensive lists by clicking on the first search results from Googling “undergraduate summer research” or looking at these lists of pre-med research programs here, or here to start. There are additional programs sponsored by Howard Hughes Medical Institute which carry some prestige because of the premier name of HHMI. These do not have to be wet lab experiences, though the majority of these programs are.

- Deadlines for all summer internships are generally in February, and most require recommendation letters, so get started early - ask for the letters before Thanksgiving or winter break so as to give professors time to write them.
- Competitiveness varies depending on the program and probably how comprehensively costs are covered. Generally, the program matches you with a mentor for the summer depending on your stated research interests.
    - It is strongly recommended that you find a faculty member beforehand that would be willing to have you work for them should you be admitted to their program; then, ask that mentor to email the director of that summer program while you submit your application, stating an intent to work with that specific faculty member. This will greatly increase your chance of admission to the program, and guarantee a better mentorship experience.
- Some of these programs provide a stipend, which is useful if you have to move and find a sublease for the summer. If you’ve received an offer for a position and it is unpaid, Rice does have a summer internship fund that can help cover costs.

If you would like to spend the summer doing research, you may wish to join the program at a medical school that you would like to attend in the future; there is a definite advantage if, in the future, you can tell a school that you wish to attend because you greatly enjoyed your personal summer experience, and you also gain an advantage if one of your recommendation letters comes directly from a faculty at that institution.

It is understandable to want to spend your summer at home or with friends in Houston. If you do not wish to attend an established summer program but would like to do research, simply look for a lab (as described in the "Finding a lab" section) at an institution near your home. All universities have research faculty, and their work and contact information would be posted on the university website. Many professors in the TMC will advertise for summer lab interns through the BCB listserv in the spring - it's well worth your time to get on the listserv, and many of those positions can turn into full-year or multi-year opportunities.

International research opportunities are also available. This is a bit trickier.

- Ask the biochemistry department about connections abroad
- Ask your professors about possible contacts, since many of them have done parts of their education in a foreign country.
- Look for formal university summer research programs abroad
- The Wagoner Fellowship through Rice's CCL allows you to receive funding if you secure a research position overseas and do not receive funding

Scholarships and Honors

- BIOS 310 (independent research)
- HONS 470/480 (RUSP - Rice Undergraduate Scholars Program)
    - RUSP is a selective program for Rice undergraduates that provides grant funding and lectures about careers in research. It includes students from all disciplines and ample opportunity for presentations and information exchange with students and professionals.
- BIOS 401/402 (senior research thesis, undergraduate honors research)
    - For biosciences majors, you must apply to BIOS 401/402 to do the senior research thesis. There should be an equivalent honors research program in many of the other natural sciences or engineering majors at Rice (ask your advisor). The senior thesis is a laudable accomplishment, and you can put it on your resume and identify with your work even after you graduate.

Summer research internships may be considered a form of scholarship, and RUSP helps students to find grant funding. Other scholarships are scanty for the premedical student. The Barry Goldwater scholarship is offered to sophomores or juniors that plan to pursue a PhD or MD/PhD joint degree. Beckman Scholars Program also offers scholarships under specific research faculty at Rice. You may wish to set up an appointment with the Director of Scholarships and Fellowships at Rice University to discuss other opportunities; however, keep in mind that most scholarships for research are awarded to undergraduates going to PhD programs and some to aiming to pursue the joint MD/PhD degree.

After You Get In

Firstly, congratulations! You did it! Getting into medical school is no easy task, and you should feel proud of such a wonderful accomplishment. Once you are accepted, you typically need to secure your spot by sending a signed, non-binding agreement to the school (the school will typically send you that form with your acceptance packet and there might be a small deposit required).

AMCAS Schools

For AMCAS Schools, you can hold as many acceptances as you like until April 15th. By April 15th, you should have narrowed down your acceptances to three schools. By April 30th, you must choose one school where you want to hold an acceptance and withdraw your application from all other schools where you have received offers. At any time during the process, if you have been accepted to a school that you know for certain you do not wish to attend, it is polite to withdraw from that school as quickly as possible out of consideration for other applicants.

On April 30th, you can only be holding one acceptance offer, but you can still be on any number of waiting lists. For example, on May 3rd, you might be holding your Columbia acceptance but still waiting on the Penn waiting list. If Penn notifies you in June that you are accepted off of their waiting list, you could withdraw from Columbia and accept Penn's offer. But, you cannot hold onto both the Penn and Columbia acceptances at that time because it would be after the April 30th deadline. Theoretically, you can be waiting on a school's waiting list even into their school year, but the chances of getting off of a waiting list begin to diminish after April 30th.

TMDSAS Schools: The Match

Prior to the match, medical schools will extend offers of acceptance to Texas residents from October 15 through January 31. During this period, you may receive offers of acceptance from more than one Texas medical school; this is called the pre-match period. The regular match will be conducted on March 5 to fill the remaining slots as follows:

- Applicants not holding an offer will submit a preference list ranking all schools where they interviewed by February 19, 2021
- Applicants holding pre-match offer(s) will also submit a preference list ranking pre-match school(s) and any other school(s) where they interviewed
- An applicant holding a pre-match offer who matches to a school he/she ranked higher than the pre-match offer school will automatically be withdrawn from the pre-match offer school and all other lower ranked schools. The applicant continues to remain open to be selected by schools he/she ranked higher.
- The deadline for applicants to submit their preferences online is February 19.

- Results of the match go live on March 5, 2021
- If you do not match, you may be placed on waitlists for the schools that you interviewed at. They may contact you to offer you an acceptance throughout the spring.
- If you did match, you may be placed on waitlists for schools that you ranked higher in the match, and you may be offered acceptances to those schools as well. You will be expected to choose between your match offer and any waitlist acceptances in a timely manner.

Occasionally, students think that they are smarter than the match process and try to game the system by ranking a school they think that they are more likely to get into higher, rather than the school that they would rather go to. The match system is designed to favor the applicant and their preference, so it really is in your best interest to rank the school(s) that you want to go to more, higher, rather than trying to trick the algorithm.

On Taking Time Off (Overview)

There are a few ways to take time off. Over half of current medical students took at least one year off, so it is increasingly normal!

1. Deciding to take a gap year (or two, or three, or four - however many!)
2. Deferring admission after being accepted
3. Not being offered an acceptance during your first round of applications
    a. Do not lose hope if you are not accepted the first time applying!

Gap Year(s)

The most important part of choosing to take gap year(s) is that you have a plan. It's a great opportunity to pursue your interests, whether related to medical school or not; medical school, residency, and going into practice are busy times in your life, and it may be hard to get that substantial amount of time "off" later.

Many students work in clinical or research jobs, work as scribes, pursue fellowships for research or international travel, or pursue substantial community service through Americorps or the Peace Corps or Teach for America. Some others pursue additional degrees in public health, business, or health policy, for example. The only thing that is important here is that you are pursuing something you are passionate about!

PERSPECTIVE: Gap Year

> "Taking gap year(s) before medical school is no longer something that is controversial or unheard-of. In fact, during my experience as a medical student interviewer for BCM Admissions Committee, I've learned that it is actually looked upon favorably, as students

who enter the non-traditional route bring additional diversity and years of experience and maturity.

"My gap year before medical school was definitely a good strategic move. I wanted to make up my lower GPA from freshman and sophomore year with higher grades from junior and senior year. While I was already a biochemistry major, I added sports medicine as a second major, so I wanted time to focus on those classes as well (I took some summer KINE classes too to fit it in my schedule). I also wanted more time to take my MCAT (I took it twice!) and more time to develop stronger relationships with my professors and mentors who would later write me excellent LORs. During my senior year of college, I was able to log more volunteering hours with a lighter "senior year" academic schedule, which actually inspired my personal statement. Taking a "breather" for me to better organize my application and take time to apply really worked well for me. While I was initially nervous going into the application season one year later than almost all of my Rice friends, I applied within TMDSAS and AMCAS (for Baylor) and was fortunately interviewed and accepted at all of the medical schools in Texas. With the gap year, I was able to plan my time better with the interview seasons without having to worry about upcoming classes or midterm exams; I was a full-time research assistant working at MD Anderson, but my PI was thankfully really lax about my interview schedule which helped ease my concerns.

"My advice to those wanting to take a gap year is to ensure that you secure your LORs early. It may be possible that the professors you wanted to write you a LOR may have forgotten about you and just write a generic pre-prepared statement that won't help you (and might actually hurt). Is there a particular medical school that you'd like to go to? It may be good if you want to do research with a professor or shadow an attending from that particular school. You can also work in Texas for a year full-time and receive Texas residency (I'm a big advocate for this if you are originally out-of-state like me); research on how to do this with your family and see if this is the route for you.

"In all, medicine is a changing field where it's really becoming less focused on grades and academics and more on the overall holistic applicant. With the board exams like STEP 1 (which is like MCAT to medical school but instead for residencies) becoming pass/fail and pre-clinical work already pass/fail, all medical schools are really looking for individuals who can show compassion, a drive to learn, and appreciation and understanding for diversity especially in our world today."

-*Jessica Sheu, Rice '16, Baylor College of Medicine*

Deferrals

To defer your admission for a year, you have to be accepted normally (not from off of the waiting list). Schools use their waiting lists to fill spots for a given matriculation year, and it would

not make much sense for a school to admit a waiting list student who will not matriculate that year (therefore, do not tell a school you want to defer if you're on their waiting list).

If you have been accepted in the normal admissions pool and would like to defer, it is best to ask the admissions director for the deferral policies. Some schools do not grant deferrals. Most schools, though, do grant deferrals for up to one year. A typical requirement for deferring admission is that you must send a letter explaining the reason(s) you wish to defer and your plan for the year off. There are many potential reasons why you might consider deferring. In a year, you can do a lot of really cool things - however, deferrals can be difficult to get approved, so don't count on this method of taking a gap year.

Reapplication

It's okay if you did not get in the first or the second round of applications! The process is somewhat arbitrary, and it does not have any reflection on your worth as a person or a future physician.

The first thing that you should do when you realize that you did not get in for the cycle is to examine your application. Look at every part - your statistics, your non-clinical and clinical experiences, your essays, your letters of recommendation (if you can see them), and be honest about what you think your weaknesses are. Consider the schools that you applied to. Many medical schools also offer reapplicant workshops, where you can meet with admissions faculty and they will go through your application with you - these are very well worth the extra effort. After you get rejected, send emails to schools within the next few months to ask about your application and what could have been improved. You can also meet with your pre-medical advisors at your university to do the same application review.

The next step is to start fixing the parts of your application that can be improved. If your GPA is low, consider taking additional courses to bring up your GPA, or enroll in a Special Master's Program (SMP), many of which mirror the preclinical curriculum of medical school. The AAMC has a list. Some SMPs have linkage programs, where you can be guaranteed an interview at a linked medical school if you maintain a GPA of a certain amount. Be careful of your MCAT, because it may expire (5 years for TMDSAS, 3 years for AMCAS). You should continue to pursue clinical opportunities and/or research to demonstrate your continued interest in medicine as well.

When you reapply, you should first consider how you are a better applicant than you were the previous application cycle - in that vein, it's okay to take more than one year off between cycles. You should rewrite your personal statement and emphasize your recent experiences and reflections on how you would be a better candidate. Likewise, you should also have another new letter of recommendation that speaks to the time you took off and how you grew as a person and as a future physician. You will be scrutinzed more as a reapplicant, so it is more important for you to apply early and hit all of the benchmarks - you have much less room to

make mistakes. The most important thing to remember, though, is that there are many good physicians who were not successful in their first round of applications - you're in good company.

What if my parents are against me taking time off?

Undoubtedly, your parents will want to know why you are putting off becoming a doctor for a year or more. Most parents just want to know that you have a plan, and won't be couch surfing around Europe for the next year (an excellent idea though!). If you are struggling to get parental support, have a conversation with them that includes why you want to take time off, what you plan to do with that time, how you plan to support yourself financially, and how it will ultimately make you a better and more well-rounded physician. Having a structured plan, including finances, and acknowledging how the experience will help you down the road often is enough to convince parents that you are no longer a child, and can make important decisions like this one on your own.

If I take time off won't I forget everything? Won't I struggle because I am not used to studying?

Don't worry too much about forgetting material and/or getting out of the rhythm of studying. One of the best reasons to take time off is to give your brain a break! You will be bombarded with so much material in medical school, so in the long run forgetting a few reactions and the like will not make that much of a difference. If you are really concerned about keeping your science knowledge fresh, consider doing something like research, or teaching. There are plenty of gap year opportunities that will keep your mind actively engaged. Most students who take time off enjoy the fact that they can read for leisure, or learn something new without the pressure of being in school.

Afterword

This book has been an absolute pleasure to write. I would like to thank the contributors for their continued, invaluable support. Without the support of my peers, I would not be where I am today and this book would certainly not have ever been published. If you ever have a free moment, it would be great to hear any comments/feedback that you have on this project and its usefulness to you in the application process (Email: Brian.D.Schwab@gmail.com). To the reader I would like to say one final note: Go, make us proud. – Brian Schwab (WRC ’07, Duke Medical School)