

Pre-Medical and Pre-Dental Guide

2019-2020

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Welcome Letter from the Office of Academic Advising

To Our Rice Pre-Health Students,

As you embark on your undergraduate career, we recommend that you use this period of your life to explore your options, discover who you are, develop strong critical thinking and study skills, engage in experiences that allow you to integrate your learning with practical application, and begin to make meaningful contributions to your community. Should you decide that the health professions route is what you intend to pursue, it is our hope that this guide will address most of your concerns.

The Pre-Medical and Pre-Dental Guide is intended to provide an overview of the application process to medical and dental schools in the United States – the timeline, coursework, and other components that comprise a competitive application. We believe this will serve as a useful resource in creating your academic plan at Rice and throughout the medical and dental application process.

All advisors in the Office of Academic Advising (OAA) are official health professions advisors registered with the Association of American Medical Colleges. We maintain membership in several professional organizations to remain current on the latest trends and data related to medical and dental school admission. While there are many resources you may choose to consult regarding your potential path towards medical or dental school, we strongly recommend that you contact one of our advisors for tailored advice regarding your personal plan.

Additionally, the OAA provides health professions advising for students interested in other healthcare fields. While most of our pre-health students intend to pursue careers as a physician or dentist, there are many other career paths that lead to employment in healthcare settings. Studies in allied health sciences include but are not limited to pharmacy, optometry, podiatry, public health, physical therapy, occupational therapy, speech therapy, and veterinary medicine.

As you delve deeper into this process, our advisors are available to answer any specific questions. We encourage you to schedule an appointment for further assistance. We look forward to working with you!

The Office of Academic Advising

Office of Academic Advising | Ley Student Center, Suite 132 | aadv@rice.edu | 713.348.4060

<http://oaa.rice.edu>

<http://www.facebook.com/riceacademicadvising> | <http://www.twitter.com/riceacademics> |
<http://www.instagram.com/riceacademics>

Meeting with an Advisor

Academic advising is handled by an entire community of advisors, including Divisional Advisors (pre-major faculty advisors) and Peer Academic Advisors (PAAs). Each has significant training and resources provided by the OAA regarding health professions. The OAA is the primary hub for health professions advising. Most student questions can be answered accurately and efficiently by asking any member of this large community, many of whom are readily available in the residential colleges. However, if students need additional assistance regarding health professions, they should call the OAA at 713-348-4060 to set an appointment with one of seven official health professions advisors registered with the Association of American Medical Colleges (AAMC). The advisors can provide information about all pre-health fields.

Health Professions Advising Newsletter

The OAA's Health Professions Advising Newsletter is designed to communicate updates and events of interest to students preparing for a career in the health professions. Current Rice students as well as alumni can request to be added to our newsletter mailing list by sending an email to hpa@rice.edu. All incoming freshmen who have marked an interest in pre-health on their advising questionnaire will automatically be added to the newsletter mailing list.

Pre-Health Timeline

If you are considering a career in health care, you will need to complete all the required prerequisite courses and gain valuable clinical experiences before applying to a professional school. This timeline is designed for students who intend to matriculate immediately after graduating from Rice and serves as a point of reference to help you prepare your application and meet deadlines. Students who are planning to take a gap year are recommended to consult with an advisor to discuss extending the timeline.

First Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> Begin to survey career options in health care <ul style="list-style-type: none"> www.explorehealthcareers.org Attend the Health Professions Advising Orientation Join Rice Pre-Medical Society (RPMS), Rice Pre-Dental Society (RPDS), or another pre-professional student organizations Engage with the Rice advising community to begin planning a tentative course of study 	<ul style="list-style-type: none"> Explore different majors that interest you If desired, make arrangements to conduct undergraduate research Visit the Center for Civic Leadership (CCL) to identify volunteer programs of interest Visit the Center for Career Development (CCD) to identify summer programs/job opportunities; apply for an OwlEdge Externship; attend the Rice Career and Internship Expo Visit the Study Abroad Office to plan ahead for opportunities during your junior or senior year
Second Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> Attend the Sophomore Information Session Plan the intellectual focus of your curriculum; narrow choices for a major Begin to obtain clinical observation experience Continue volunteer work Continue research, if applicable 	<ul style="list-style-type: none"> Declare a major Apply for summer programs Check professional school admission requirements Begin preparation for the standardized test: independent review, Kaplan, The Princeton Review, Examcrackers, etc.
Third Year	
Fall Semester	Spring Semester/Summer**
<ul style="list-style-type: none"> Attend one of the Open File Information Sessions Open a file with the OAA before Winter Recess begins Begin preparing high school paragraph, curriculum vitae, pre-application form, and draft personal statement Request letters of evaluation before January 31, to be received in the OAA by mid-May Consider potential gap year opportunities: employment, fellowships, research, clinical exposure, volunteer programs, continued education, etc. 	<ul style="list-style-type: none"> Submit high school paragraph, curriculum vitae, pre-application appointment form, and draft personal statement to the OAA before January 31 Make pre-application appointment before April Review professional school admission requirements again; research institutions of interest and create list of schools for application Begin web-based common applications to professional schools (AMCAS, TMDSAS, AACOMAS, AADSAS, VMCAS, PharmCAS, SOPHAS, PTCAS, etc.) <p>**Summer - Complete and submit both primary and secondary applications by early July</p>
Fourth Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> Continue progress toward completion of major and degree requirements Complete remaining prerequisite coursework Prepare to interview at professional schools 	<ul style="list-style-type: none"> Complete remaining degree requirements Update the OAA with your admission status Graduate!

Course and Standardized Test Requirements for Admission

Prerequisite Course Requirements

It is important to recognize that there is an ongoing, national conversation concerning the ‘synergy and efficiency in the continuum of pre-medical and medical education.’ Thus, undergraduate requirements for these programs are constantly under review. Nevertheless, with few variations, the overwhelming majority of medical and dental schools require completion of the following courses.¹ Students will need to create an academic plan to accommodate these courses alongside their requirements for graduation.

	Course	Required	Recommended	Hours	Required Lab Course	Hours
	English	•		6		
	General Chemistry	•		6	•	2
	Organic Chemistry	•		6	•	2
	Biology ^{2,3}	•		6	•	2
	Biochemistry ⁴	•	•	3		
	Physics	•		6	•	2
	Mathematics	•		3-4		
	Statistics ⁴	•	•	3-4		
	Psychology ⁵		•	3		
	Sociology ⁵		•	3		
	Humanities/Social Sciences (hours= <i>n</i>)		•	12< <i>n</i>		

¹ For specific requirements to other programs (veterinary medicine, pharmacy, optometry, etc.), please visit the OAA's website on Allied Health Professions.

² Most Texas medical schools require additional upper-level biology coursework (300- & 400-level course offerings).

³ Dental schools require additional coursework in microbiology. BIOC 424 will satisfy this requirement.

⁴ A significant number of medical schools require at least three hours of this discipline as a requirement. Others strongly recommend.

⁵ Psychology and Sociology are now required components on the MCAT exam, and some schools require these courses.

The specific requirements for each medical school can be found in the yearly publication from the Association of American Medical Colleges, *Medical School Admission Requirements (MSAR)*, which can be purchased from the AAMC website: www.aamc.org. Likewise, the American Dental Education Association publishes the *Official Guide to Dental Schools*, which can be purchased from the ADEA website: www.adea.org.

Rice Courses that Satisfy Most Medical and Dental School Admission Requirements

SUBJECT AREAS	LECTURE ONLY	LAB ONLY	LECTURE/LAB COMBINED
BIOLOGY	BIOC 201 EBIO 202	BIOC 112, 211 EBIO 213	
GENERAL CHEMISTRY	CHEM 121, 122, 151, 152, 360	CHEM 123, 124, 153, 154, 366	
ORGANIC CHEMISTRY	CHEM 211, 212, 320	CHEM 215, 365	
BIOCHEMISTRY	BIOC 301 BIOE 330*		
PHYSICS			PHYS 101, 102, 111, 112, 125, 126
CALCULUS	MATH 101, 102, 111, 112, 211, 212, 221, 222		
STATISTICS	BIOE 391, 439, 440** EBIO 338** STAT 280, 305, 310, 315		
ENGLISH	HUMA 101, 102 FWIS 101-199 Any ENGL-prefixed course		

*Indicates that specific institutional requirements should be checked because some schools require that biochemistry be taught in a biology or chemistry department.

**Indicates that specific institutional requirements should be checked because some schools require that statistics be taught in a mathematics or statistics department.

Rice Courses that Satisfy Texas Public Medical and Dental School Admission Requirements

The following Rice University courses have been approved by the Texas Medical and Dental School Application Service (TMDSAS) to fulfill prerequisite requirements for public medical and dental schools in Texas. Please note that the list below may include some classes that are not currently offered. Updated as of August 2, 2018.

SUBJECT AREAS	LECTURE ONLY	LAB ONLY	LECTURE/LAB COMBINED
BIOLOGY	BIOC 201, 300, 331 [‡] , 332, 334 [‡] , 335, 341, 344, 361 [‡] , 371, 372, 380 [°] , 385 [°] , 424, 443, 445, 447, 450, 460, 463, 464 [‡] , 481, 482, 523 BIOE 302, 307, 321, 322, 370, 372, 381, 403, 408, 420, 422, 524 CHBE 310 EBIO [†] 202, 321, 323, 328, 329 KINE 300, 301, 302, 321	BIOC 111, 112, 211, 212, 305, 310, 311, 313, 318, 320, 413, 415 BIOE 320, 342 EBIO [†] 213, 306, 316, 332 KINE 323, 351 NEUR 310, 331 NSCI 120	
GENERAL CHEMISTRY	BIOC 352 CHEM 121, 122, 151, 152, 360	CHEM 123, 124, 153, 154, 366	
ORGANIC CHEMISTRY	CHEM 211, 212, 320	CHEM 215, 365	
BIOCHEMISTRY	BIOC 301, 302 BIOE 330*		
PHYSICS			PHYS 101, 102, 111, 112, 125, 126
CALCULUS	MATH 101, 102, 105, 106, 111, 112, 211, 212, 221, 222		
STATISTICS	BIOE 391, 439, 440** EBIO 338** KINE 319** PSYC 339** SOCI 382** SOSC 302** STAT 280, 305, 310, 312, 453		
ENGLISH	HUMA 101, 102 FWIS 101-199 Any English course with ENGL prefix		

[‡] Indicates a course that is cross-listed in the Department of Ecology and Evolutionary Biology (EBIO) with the same description and course number.

[‡] Indicates a course that is cross-listed in the Department of Bioengineering (BIOE) with the same description and course number.

[°] Indicates a course that is cross-listed in the Neuroscience Program (NEUR) with the same description and course number.

[†] Indicates that these courses (all courses with an EBIO prefix) were formerly approved and added to the prescribed courses list as BIOS courses.

* Indicates that specific institutional requirements should be checked because some schools require that biochemistry be taught in a biology or chemistry department.

** Indicates that specific institutional requirements should be checked because some schools require that statistics be taught in a mathematics or statistics department.

Advanced Placement (AP) Credit

Although Advanced Placement credit may be used to satisfy some requirements for many medical and dental schools, not all schools will accept it. The OAA website, under the section titled Specialized Advising, on the [Pre-Health Professions page](#), features a summary document titled “AP Credit List for Medical Schools” that identifies the AP credit acceptance policy at different schools. However, students should still check websites or contact admission committees to determine each school’s current AP policies and decide whether to use their credit or complete the coursework at Rice.

Students should consider whether they have sufficient knowledge of the information presented in an AP course to perform well in upper-level coursework, and on professional school admission tests. If students feel they have not attained the foundational knowledge of the subject area, they may instead choose to complete the coursework at Rice. This option has the benefit of reinforcing and confirming mastery of the material, establishing their capability of performing well at the college level in each discipline, and satisfying the course requirements for schools that do not accept AP credit. When in doubt, retake the course at Rice.

If a student chooses to use a large number of AP credits to satisfy prerequisite course requirements, it leaves little for an admission committee to assess. Therefore, if a student satisfies the general biology and/or general chemistry requirements with AP credits, they should complete at least two additional semesters of upper-level course work in that discipline. All students must complete at least two credit hours of biology lab during their undergraduate tenure, as there is no AP credit granted for general biology laboratory.

Medical College Admission Test (MCAT) and Dental Admission Test (DAT)

In addition to the prerequisite courses described above, medical and dental schools require the Medical College Admission Test (MCAT) and the Dental Admission Test (DAT) respectively. The MCAT exam is a standardized, multiple-choice examination designed to assess your problem solving, critical thinking, and knowledge of natural, behavioral, and social sciences. It consists of four sections which draw from biology, biochemistry, general chemistry, organic chemistry, physics, psychology, and sociology. Scores on the MCAT are reported as four scaled scores, each ranging from 118 (low) to 132 (high). The total score is the sum of the four individual section scores and ranges from 472 to 528.

The DAT is designed to measure your knowledge of scientific information, reading comprehension, quantitative reasoning, and perceptual ability. It is comprised of four sections which draw from biology, general chemistry, organic chemistry, and mathematics. DAT results are reported in terms of scale scores, ranging from 1 (low) to 30 (high).

It is recommended that students take the appropriate standardized test soon after completing the prerequisite course requirements. The MCAT and DAT are exams you must spend a significant amount of time preparing for, either in self-study or via a preparation course. Ideally, students score their highest possible score the first time they take the test. However, it is not uncommon or detrimental to take the test a second time. This can allow for targeted preparation based on identified weaknesses and increase the likelihood of earning a higher score. Earning a lower score on the second test is not looked upon favorably by admission committees. Therefore, we encourage students to carefully consider whether taking the test a second time will be beneficial to their overall applications, and we encourage students not to rush to take the exam. Spending the time necessary to master the science courses tested on the MCAT will ultimately lead to better outcomes than stacking prerequisites to get through them as fast as possible.

If a student intends to attend medical or dental school immediately after graduating from Rice, we strongly recommend taking the test in January through June of the junior year. The latest opportunity to take the test is in August after the junior year, but we do not recommend this as you may be at a disadvantage because many applicants have already been invited for interviews at this point due to the rolling admissions cycle. Scores are admissible for three years in most instances.

- For more information and to register for the MCAT, visit: www.aamc.org/students/applying/mcat
- For more information and to register for the DAT, visit: www.ada.org/en/education-careers/dental-admission-test

Grades and Standardized Test Scores

Students must have strong grades and test scores for admission to medical and dental school. A student's science grade point average is of particular importance and includes coursework in biology, chemistry, physics, and mathematics. Generally, students should strive for both a cumulative grade point average and a science grade point average above 3.50. The average MCAT of Rice students has been consistently above the national mean, shown in the table below. Keep in mind that the greater the competition to a particular school, the higher your GPA and test score must be for you to be a competitive applicant.

Note that acceptance to medical and dental school is not based solely on numbers. Admission is based on a holistic evaluation that also includes relevant health care experiences, co-curricular involvement, recommendations, residency, motivation, and the impression of the candidate by an admission committee during an interview. Do not be discouraged from pursuing medicine if your first year of science grades is lower than you had hoped or intended. Admission committees value an upward trend in your record of academic performance. If you have received a C or lower grade in a science course, it is a good idea to make an appointment with an academic advisor to discuss your course load, your co-curricular activities, and strategies as you continue your studies. Visit the Academic Support section of the OAA website for more information and resources.

Calendar Year	Students from Rice Admitted to Medical School		Students Nationally Admitted to Medical School	
	Grade Point Average (GPA)	MCAT	Grade Point Average (GPA)	MCAT
2016	3.71	509	3.70	508
2017	3.77	514	3.71	510
2018	3.79	515	3.72	511

Sample Course Schedules

Below are some examples of how Rice students can plan to complete the course requirements for medical and dental schools. These sample schedules do not attempt to display major or degree requirements. We encourage you to meet with an advisor and adjust these examples to fit your specific academic plans. Note that some schools may have additional requirements, which can be found on each school's website.

Natural Sciences Students without Advanced Placement (AP) Credit

First Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • BIOC 201 • CHEM 121 • CHEM 123 • FWIS/ENGL • MATH 101 	<ul style="list-style-type: none"> • EBIO 202 • CHEM 122 • CHEM 124 • FWIS/ENGL
Second Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • BIOC 211 or EBIO 213 • CHEM 211 • PHYS 125 • PSYC/SOCI 	<ul style="list-style-type: none"> • CHEM 212 • CHEM 215 • PHYS 126 • PSYC/SOCI
Third Year	
Fall Semester	Spring Semester/Summer
<ul style="list-style-type: none"> • BIOC 301 <p>Study for standardized test</p>	<p>Take standardized test between January and June.</p> <p>Summer – Complete and submit both primary and secondary applications by the end of June at the latest.</p>
Fourth Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • Continue progress toward completion of major and degree requirements. 	<ul style="list-style-type: none"> • Complete remaining degree requirements.

*Add two biology electives and statistics where they fit best in any semester.

Humanities and Social Sciences Students without Advanced Placement (AP) Credit

First Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • CHEM 121 • CHEM 123 • FWIS/ENGL • MATH 101 • PSYC/SOCI 	<ul style="list-style-type: none"> • CHEM 122 • CHEM 124 • FWIS/ENGL • PSYC/SOCI
Second Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • BIOC 201 • CHEM 211 	<ul style="list-style-type: none"> • EBIO 202 • BIOC 211 or EBIO 213 • CHEM 212 • CHEM 215
Third Year	
Fall Semester	Spring Semester/Summer
<ul style="list-style-type: none"> • BIOC 301 • PHYS 125 	<ul style="list-style-type: none"> • PHYS 126 <p>Summer – Take standardized test between May and June. Complete and submit both primary and secondary applications in a timely manner.</p>
Fourth Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • Continue progress toward completion of major and degree requirements. 	<ul style="list-style-type: none"> • Complete remaining degree requirements.

*Add two biology electives and statistics where they fit best in any semester.

Engineering Students without Advanced Placement (AP) Credit

First Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • CHEM 121 • CHEM 123 • FWIS/ENGL • MATH 101 • PHYS 101 	<ul style="list-style-type: none"> • CHEM 122 • CHEM 124 • FWIS/ENGL • PHYS 102
Second Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • BIOC 201 • CHEM 211 • CHEM 215 • PSYC/SOCI 	<ul style="list-style-type: none"> • BIOC 211 or EBIO 213 • CHEM 212 • PSYC/SOCI
Third Year	
Fall Semester	Spring Semester/Summer
<ul style="list-style-type: none"> • BIOC 301 (or BIOE 330 in Spring) 	<p>Spring – Take standardized test between January and June.</p> <p>Summer – Complete and submit both primary and secondary applications in a timely manner.</p>
Fourth Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • Continue progress toward completion of major and degree requirements. 	<ul style="list-style-type: none"> • Complete remaining degree requirements.

*Add three biology electives and statistics where they fit best in any semester.

Students with Advanced Placement (AP) Credit in Biology, Chemistry, Mathematics, and Physics

Some students arrive at Rice with substantial Advanced Placement credit. Talk with an advisor and instructors in the relevant subjects to help you determine whether your background has prepared you for more advanced courses, particularly in biology, chemistry, and physics. Rather than use your AP credit, you may choose to complete the introductory courses at Rice in order to confirm mastery of the material and satisfy the requirements at medical and dental schools that do not accept AP credit.

First Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • BIOC 300 • FWIS/ENGL 	<ul style="list-style-type: none"> • CHEM 211 • FWIS/ENGL
Second Year	
Fall Semester	Spring Semester/Summer
<ul style="list-style-type: none"> • BIOC 211 • CHEM 212 • CHEM 215 • PSYC/SOCI 	<ul style="list-style-type: none"> • BIOC 301 • PSYC/SOCI <p>Summer – Take standardized test.</p>
Third Year	
Fall Semester	Spring Semester/Summer
	<p>Summer – Complete and submit both primary and secondary applications in a timely manner.</p>
Fourth Year	
Fall Semester	Spring Semester
<ul style="list-style-type: none"> • Continue progress toward completion of major and degree requirements. 	<ul style="list-style-type: none"> • Complete remaining degree requirements.

*Add three biology electives and statistics where they fit best in any semester.

Planning and Tailoring Your Undergraduate Program of Study

Choosing a Major

Medical and dental schools limit their entrance requirements to a few courses across some basic subjects that are part of any broad undergraduate education. Because of this, medical and dental schools accept students with a variety of majors. It is a myth that you must major in a natural sciences field to be accepted to medical or dental school. We encourage you to seek out a major that both interests you and in which you can perform well academically. Pursuing a major that gives you a broader perspective of another subject area in addition to the hard sciences can make you a strong, well-rounded applicant. Rice graduates who are attending Texas and out-of-state medical and dental schools have pursued all of the majors offered at Rice.

Biology, Chemistry, Mathematics, and Physics Placement

Rice's BioSciences, Chemistry, Mathematics, and Physics departments provide materials to guide students to select which courses to take during their first year. These materials are available on the OAA website under the section titled "Academic Planning" on the [Freshmen page](#). The appropriate courses may be chosen based on your background in the subject and performance on a placement exam, as well as your academic interests and prospective majors.

As stated previously, students may use Advanced Placement credit if the schools to which they plan to apply accept AP credit for introductory courses. They may still choose to complete the coursework at Rice in order to reinforce and confirm mastery of the material. If necessary, talk with an advisor and instructors in the relevant subjects to help you determine whether your background has sufficiently prepared you for more advanced courses.

At Rice, students are not required to declare a major until the end of sophomore year, but the type of mathematics and physics courses taken as a first-year student may limit the major options. Students considering majors in engineering or natural sciences must often enroll in MATH 101 and 102, and PHYS 101 and 102. Students considering majors in biological sciences may choose PHYS 125 and 126. Students who are certain they will not pursue majors in engineering or natural sciences may enroll in MATH 111 and 112 and PHYS 125 and 126. Undecided students may decide to pursue the mathematics and physics courses for engineering and natural sciences majors, as this gives them the most options for choosing future courses.

Course Load

The average course load for Rice students is between 14-16 credit hours. Note that engineering and natural science courses with labs can be especially time-consuming. First-year students in particular should avoid overloading themselves. It is important to transition successfully to Rice, and that begins with a balanced schedule with courses in a variety of disciplines. Focus on developing the time management and study skills that will foster success in advanced coursework and professional school.

Similarly, students should avoid registering for fewer than 12 credit hours (part-time status). Applicants to medical and dental schools must demonstrate the ability to manage a consistently rigorous curriculum that includes advanced science coursework as well as a love of learning through in-depth study of a particular area of interest.

Pass/Fail

Note that medical and dental schools will not consider any required prerequisite courses taken pass/fail as fulfilling their requirements. Prerequisite courses must be taken for a letter grade. If you anticipate an exceptionally challenging semester ahead, it is acceptable to take one of your elective courses pass/fail in accordance with the rules in Rice's General Announcements. Note that even in cases where taking a course pass/fail is not absolutely prohibited, it may still be inadvisable. A grade of 'D' counts as a "Pass" in a pass/fail course, so admission committee members may assume a grade of 'D' was earned in the course and judge an applicant less favorably.

The Office of the Registrar does not reveal letter grades earned in prerequisite courses when you order an official transcript for your application to health profession schools. If desired, students can convert a pass/fail to a graded course by submitting the proper online form with the Office of the Registrar before the end of the second week of the following semester.

Summer School and Taking Prerequisite Courses at a Different Institution

It is possible to take prerequisite courses over the summer as long as they are taken at Rice or another reputable four year institution. It is not recommended that you take many of the prerequisites during the summer months. Summer courses often squeeze a semester of work into five weeks. Such a short time typically does not provide the level of mastery students should achieve in the course to perform well in advanced coursework and on standardized tests.

Students who take a course during the summer and at another institution should complete the Undergraduate Transfer Credit Request Form. If students need those courses to satisfy degree and/or major requirements at Rice, they must also secure approval from the appropriate Transfer Credit Advisors prior to enrollment in the courses. Courses transferred to Rice will not be calculated into your Rice grade point average, but professional schools will still use these grades when calculating your overall GPA, as you will send all transcripts from every school you have attended when applying.

Study Abroad

Medical and dental schools are interested in individuals who are broadly educated. A study abroad experience can enhance your application if you immerse yourself in learning about the people, language, and culture of the country in which you study. Studying abroad can also give you exposure to more areas of interest such as global health. Students can explore study abroad opportunities and search for programs specifically focused on medicine and global health on Rice's Study Abroad Office website at <http://abroad.rice.edu/>.

With careful academic planning, any student can study abroad and successfully apply to medical or dental school. While it is acceptable to take science courses abroad, medical and dental schools will not accept credits for prerequisite courses from international institutions. You will also need to schedule your standardized test allowing for adequate preparation before or after your semester or summer abroad.

Gap Years

It can be challenging for students to complete all of the prerequisite courses for medical and dental schools in three years, unless they are using substantial AP credit. Students must also make time to gain clinical experience, engage in community service, and possibly conduct research before applying.

Some Rice students decide to take four years to prepare, and this choice is becoming more and more common each year.

If you choose to spread out the required coursework over four years, then you would take the appropriate standardized test at the end of your senior year, submit your applications to professional schools, and take a year to work or follow other interests while you go through the admission process. A student's "gap year" or "growth year", as it is often called, provides the opportunity to engage in experiences that may not have been available during the undergraduate years or will not be possible after matriculating to a professional school. Students often choose to work in their field of study, gain more clinical exposure, conduct research, engage in service, or travel abroad. It is also common for students to pursue other graduate degrees. As long as your time is spent productively, it can augment your application.

Medical and dental schools look favorably on applicants who are older, more mature, and who have more extensive life experiences. The median age of applicants to medical school is 24, indicating many students opt to apply after graduating from their undergraduate institution. Therefore, students can feel secure in their decisions to enjoy their four undergraduate years and take advantage of the many opportunities that Rice offers. Talk with an advisor about all of your possible options and consider that taking four years to complete requirements could give you more opportunities for achievement. Be sure to visit the OAA's page on gap years at <http://oaa.rice.edu/gap-year-planning/>.

Post Baccalaureate Programs

Sometimes students will delay applying to professional schools in order to improve their academic record and/or better prepare for the standardized test. Post baccalaureate programs, which are begun after earning a bachelor's degree, support students' transition from an undergraduate to a professional school. Students should talk with an advisor about whether such a program would enhance their application and competitiveness for admission.

There are many different programs available designed to address the requirements that post baccalaureate students need to be competitive applicants. Most post baccalaureate programs range from one to three years in length. Some programs offer a certificate of completion while others offer a master's degree. There are advantages to seeking programs that lead to a master's degree, especially if you decide ultimately not to pursue admission to a medical or dental school. Some programs may have credit-sharing agreements with professional schools. In this case, there may be agreements for conditional admission based on how successfully students complete the program.

AAMC provides a searchable database to help you find the program that is right for you: <https://apps.aamc.org/postbac/#/index>

Co-curricular Activities

Your undergraduate years at Rice should not be viewed simply as academic preparation for a health professions school. You should use these years to explore your interests, find out who you are, and discover what you can achieve. In addition to a strong academic foundation, medical and dental schools look for applicants who possess motivation, maturity, cultural sensitivity, compassion, ethics, and integrity. They expect applicants to have recent exposure to their prospective field of choice, a demonstrated desire to help others, and the ability to work effectively in teams. Experiences acquired through shadowing, volunteering, clinical research, leadership roles, jobs, and internships will demonstrate an applicant's commitment, dependability, intellectual curiosity, empathy, resilience, and communication skills. Get involved in activities you are passionate about, even if they aren't health

related. Professional schools are looking at who you are and what makes up your personality, values, and interests. As you choose which activities to participate in, consider that some of your experiences at Rice may have a profound influence on your life beyond admission to a professional school.

Clinical Experience

It is never too early to start gaining clinical experience. While there is no set number of required hours, some clinical experience is absolutely necessary for students to learn about health care and to show commitment to a career in the field. Shadowing a physician or dentist demonstrates that the student has taken the initiative to gain first-hand experience in the field in which they intend to work. Direct interaction with patients through work or sustained volunteering in a hospital or clinic is also very helpful. Even students with strong grades and recommendations are sometimes not admitted to medical or dental school if they have had no contact with patients and physicians or dentists in the years immediately prior to applying.

Clinical experience can be obtained different ways. Students can e-mail a physician or dentist in a small practice and ask if they have space and time available for a student observer. A good place to start is often with a student's own physician or dentist. At large hospitals, like those in the Texas Medical Center, students must apply for the opportunity to observe a physician. It may take several weeks to submit and process all of the application materials, including a background check and vaccination record, so students should begin preparing to apply well in advance of when they want to begin. Rice also offers a course, NSCI 399, in which pre-medical students can obtain credit hours while shadowing physicians.

Community Service and Leadership

Medical and dental schools value empathetic and altruistic applicants. Service to the community demonstrates dedication to making a positive difference in the lives of others. Furthermore, these activities create opportunities to gain knowledge about social and cultural factors that affect interactions and behavior, cultivate ethical and moral reasoning, and work collaboratively with people from diverse backgrounds. Again, there is no set number of hours required, and all service does not need to be related to health care. Students should invest in activities and causes that they care about and which reflect their unique interests.

The Center for Civic Leadership (CCL) offers a range of programs in which students can volunteer, develop their capacities for community-based leadership, and address real-world problems. Additionally, Rice's residential college system affords ample leadership opportunities, and there are more than 200 student organizations in which you can be involved. If you are curious about organizations related to health care and health professions, you can begin with the Rice Pre-Medical or Pre-Dental Society. For a full list of Rice student organizations, see [here](#).

Research

Though not a required component of a successful application, undergraduate research is one of many worthwhile activities in which a student might choose to engage. Undergraduate research can help students develop their critical thinking and communication skills, and health profession schools value the experience gained from a sustained commitment of a year or more. Note that it is not necessary to conduct research in basic or applied sciences. There are opportunities for scholarly research in all disciplines, so select an option that piques your intellectual curiosity.

Obtain research experience by contacting a faculty member directly about volunteering in their lab. Students typically begin with professors at Rice. Research experience can also be gained in the Texas Medical Center. In either case, most labs have a website describing their work. Students can e-mail their résumé to faculty members and request a meeting to discuss their current research agenda.

Once they have secured a position, students can earn credit hours for undergraduate research in most disciplines. For example, the [BIOC 310 website](#) provides tips for students seeking research opportunities in biochemistry and explains the process for obtaining credit. Although they are not expected to publish their work, the annual Rice Undergraduate Research Symposium is a great opportunity for students to present their projects. Students with significant dedication to research may desire to complete a senior thesis in their major and/or apply for Distinction in Research and Creative Work, which is granted at commencement.

Medical and Dental Scientist Training Programs

Medical and dental scientist training programs, many of which are funded by the National Institutes of Health, prepare students to bridge the gap between basic science and the practice of medicine. Graduates of combined MD/PhD or DDS/PhD programs often go on to become faculty members at universities and research institutes. While they still practice patient care, they spend most of their time conducting research in order to advance knowledge and develop new treatments for diseases.

These programs admit a select group of exceptional students who possess superior research and academic potential, and it is a highly competitive process. It is desirable for applicants to have more than a year of significant research experience under the same mentor, as well as presentations and/or publications of their work. Applicants must request individual letters of support from each of their research mentors, and they are required to submit additional essays stating their reasons for pursuing a combined degree and describing their research experiences.

The Application Process

The Open File Process and Health Professions Advising Committee (HPAC)

Each year in early November, the OAA invites students applying to medical and dental schools in the upcoming cycle to participate in the “Open File” process. The OAA provides detailed information regarding the common application services and the Health Professions Advising Committee (HPAC). Students who elect to open a file with the OAA are expected to provide extensive documentation of their accomplishments for the creation of an HPAC letter of evaluation. They receive resources to assist with providing documentation and producing a stronger application.

The HPAC is composed of the advisors in the OAA as well as faculty members representing each division of study. Their role is to write a detailed letter of evaluation that best represents each student’s candidacy for admission and provides an integrated institutional perspective on a student’s readiness for graduate study and a future career in health care. The OAA also manages the receipt of all individual letters of support requested by students, and ultimately submits a complete packet, including the HPAC letter, to the common application services to accompany each student’s application.

This is an optional service, but has been a Rice tradition for over 25 years, and a vast majority of students elect to do Open File. Students are welcome to forgo the Open File process and HPAC letter.

Instead, their individual letters of support should be submitted directly to the common application services.

Common Application Services

The application process officially begins when a student starts to complete the web-based common applications to professional schools. They are as follows:

- [AMCAS – American Medical Colleges Application Service](#)
- [TMDSAS – Texas Medical and Dental School Application Service](#)
- [AACOMAS – American Association of Colleges of Osteopathic Medicine Application Service](#)
- [AADSAS - Associated American Dental Schools Application Service](#)

AMCAS and TMDSAS are both common application services for allopathic (MD) medical schools. TMDSAS applies only to Texas public schools (Baylor College of Medicine is a private institution and, therefore, uses AMCAS). AACOMAS is the central service for osteopathic (DO) schools, and AADSAS is for dental schools. Most of the allied health professional schools also use a centralized application service. Please see an advisor in the OAA if you have further questions.

Students are responsible for submitting their primary application materials to one or more of these services. This includes academic and biographical information, course work, employment and co-curricular activities, and essays. Official transcripts, standardized test scores, and letters of evaluation must be requested and released. Each service provides a detailed instruction manual for completing their application, and staff is readily available to answer any questions. Once an application has been processed and verified as complete, it is transmitted in its entirety to the specific professional schools selected.

Deciding Where to Apply

The decision of which professional schools to apply to should be based on a student's unique goals and interests. There are numerous factors to consider, so you will want to start investigating schools at least several months before you begin your application.

For most applicants, the highest likelihood of acceptance is at public schools within the state where you have legal residence. Therefore, this is a good place to start forming your list. Identify the mission and curriculum of each program and assess whether your goals align with the institution. Gather information about the location of the school as well as the size and demographics of the campus community. Review the published GPA and MCAT scores for each school, and select a mix of schools with median scores higher, on par with, and lower than yours. Finally, you should weigh not only the cost of attendance, but also the potential cost of applications (including application fees, costs associated with interviewing, acceptance deposits, etc.).

Each February, the OAA hosts a Health Professions Fair where students can speak with admission counselors from a variety of professional schools. The following resources can also help you get a sense of each school and what they have to offer.

- [Medical School Admission Requirements \(MSAR\)](#)
- [Osteopathic Medical College Information Book](#)
- [ADEA Official Guide to Dental Schools](#)

Texas Residency

Many states have policies governing the proportion of in-state to out-of-state applicants that may be admitted to their public colleges and universities, which includes medical schools. In Texas, TMDAS uses information provided in the application to make an initial determination about residency and places the applicant in the appropriate pool: resident vs. non-resident. Determining residency for the applicant pool is different than determining residency for tuition, voting, or taxing purposes. For more information about determining and establishing residency in Texas, visit: <http://tmdsas.com/Pre-Submission/Residency.html> Questions about residency should be directed to info@tmdsas.com.

Individual Letters of Support

Medical and dental schools consider letters of support critical when evaluating applicants. Typically students request letters from three or four individuals, including at least one science professor, a major subject-area professor, and another mentor/advisor. The ideal combination of letter writers will vary by applicant. Identifying the best writers for a particular student is dependent on having a network of individuals who know you well through your courses and clinical, volunteer, leadership, and research activities. Begin developing relationships early in your undergraduate career with professors and mentors who could provide a strong letter on your behalf. Bear in mind their familiarity with you is generally more important than the prestige of their position.

To successfully request and obtain strong letters of support, provide your prospective letter writers with adequate notification and appropriate supporting documents, including an unofficial transcript, curriculum vitae, draft personal statement, and waiver form (provided electronically by the OAA). Science professors, in particular, receive many requests for letters of support, and to write a thoughtful letter takes substantial time. After letters are completed and submitted, you should send thank you notes and updates on the progress of your admission to your letter writers.

As mentioned before, the OAA acts as an intermediary in the letter process for students who have opened a file. After all letters requested by students are received by the OAA, they are submitted along with the HPAC letter to the common application services. To learn more about how Rice will support you through a committee letter, visit our [Open File webpage](#).

Personal Statement

Applicants are required to submit a personal statement, limited to 5300 characters (including spaces), that distinguishes themselves from other applicants. The applicant's passion and commitment to becoming a physician or dentist should be evidenced in the essay by academic, clinical, volunteer, and personal experiences. The writing process necessitates several rounds of significant revision, so do not delay in drafting your statement. The Center for Written, Oral, and Visual Communication (CWOVC) offers workshops and one-on-one consultations to provide students with feedback on their personal statements.

Reporting Student Conduct or Honor Code Violations

By entering Rice University, students agree to behave in ways that are respectful of others in the community, maintain an atmosphere conducive to learning and scholarship, and adhere to the policies outlined in the Student Handbook and Honor Code. Similarly, medical and dental schools expect good judgement, honesty, and integrity in their applicants. Students found responsible for behavior that violates these standards and expectations will be held accountable by Rice. Applicants must report

any institutional action, even if such action did not interrupt enrollment. Underage drinking, plagiarism, or other conduct issues can all make admission more difficult.

While it is best not to have any infractions to report, having an infraction on your record will not necessarily bar you from professional school. Health profession schools will want to know that you take responsibility for your mistakes and that you have learned from your lapse in judgement. Full disclosure will enable the schools to more effectively evaluate this information within the context of your credentials. If you are in doubt about whether to report an offense, meet with an advisor to discuss the details. The advisors are in a position to help you understand how to present your infraction honestly and appropriately.

Secondary Applications

Medical and dental schools commonly request supplemental information from applicants after the primary applications. A set of school-specific essays and an additional application fee usually comprise the secondary application. Some schools send invitations to all students applying to their school, other schools only send invitations after reviewing the primary application, and some schools do not have a secondary application at all. Applicants must check with each school for their policy.

It takes a significant amount of time to prepare customized responses to secondary application prompts like "Why are you interested in applying to our school?" Applicants should not procrastinate on drafting responses to these kinds of questions. It is recommended that you individualize your responses to reflect the mission and values of each school to demonstrate your interest in their program. It is also best to submit secondary applications as soon as possible, preferably within two weeks of receipt.

Interviews

Among the most important aspects of the application process is the interview. The principal goal is to determine if an applicant possesses the necessary attributes outside of academics to succeed in health profession school and clinical practice. Interviewers want to determine an applicant's "fit" with the school. For students, interviews present an opportunity to add a personal dimension to the application, ask questions, and tour the campus. This is also a great opportunity for the applicant to determine if the school is a good "fit" for them. Take notes to help with your potential decision in the future.

There are different kinds of interviews, such as standard one-on-one interviews or multiple mini interviews (MMIs). After identifying the interview format for each school, applicants should take appropriate steps to prepare and practice answering possible interview questions. This includes researching each school and reviewing the materials submitted in their application. Applicants also should be able to converse about current issues and trends related to health care.

The Rice Pre-Medical Society and Rice Pre-Dental Society coordinate mock interviews in the spring semester to help Rice applicants learn what to expect during an interview, practice interviewing, and reduce feelings of nervousness. The Center for Career Development (CCD) and Center for Academic and Professional Communication (CAPC) also offer mock interviews at any time.

Financing Your Medical/Dental Education

The cost of a medical or dental education depends on many factors, and students rely on a variety of means to finance their educations such as grants, scholarships, and loans. Students should consider how they will pay for health profession school while they are preparing for the application process.

The AAMC's FIRST (Financial Information, Resources, Services, and Tools) program provides information on student debt management specifically for medical students: <https://students-residents.aamc.org/financial-aid/>. Texas has the Joint Admission Medical Program (JAMP), for economically disadvantaged students from Texas who want to go to medical school. Find more information at: <https://www.texasjamp.org/>.

The ADEA website features financial planning resources for dental students at Money Matters: http://www.adea.org/GoDental/Money_Matters.aspx. Further information is offered by the ADA: <http://www.ada.org/en/education-careers/dental-student-resources/financial-resources-for-students-and-recent-gradua>.