PRE-HEALTH HANDBOOK

Prepared by the

Health Professions Advisory Committee

Last Revised July 2023

TEXAS A&M UNIVERSITY
SAN ANTONIO

College of Arts and Sciences

Health
Professions
Advisory
Committee

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I. INTRODUCTION

Deciding to become a pre-health student is a major commitment, as it implies an intention to attend a health professional program upon graduating from A&M—SA. Being successful in this endeavor requires considerable planning and hard work on the part of the student, as entry into allopathic (Doctor of Medicine), osteopathic (Doctor of Osteopathy), dental, pharmacy, physician assistant programs, etc. is highly competitive. At present the A&M-SA Health Professions Advisory Committee (HPAC) provides prefabricated resources for the types of professional programs listed below. However, we welcome all pre-health students and will provide tailored advice to students who are interested in less traveled career paths within the healthcare industry.

<u>Professional programs for which HPAC provides prefabricated support</u>
1. Medical doctor (M.D. or D.O.)
2. Dentistry (D.M.D or D.D.S.)
3. Veterinary medicine (D.V.M.)
4. Pharmacy (Pharm.D.)
5. Physical therapy (D.P.T.)
6. Occupational therapy (Masters or Doctorate)
7. Physician assistant (Masters)
8. Podiatry (DPM)
9. Chiropractic Physician (DC)

Each of the areas listed above is likely to be familiar to a typical pre-health student. However, health care is a big money industry and as such, these areas are constantly evolving due to technological innovations that enable improvements in patient care. Below, we provide brief overviews of each of these areas.

Medical doctors train in either an allopathic or osteopathic medical program. In practice, there is little difference between how M.D.s and D.O.s go about their daily business and both types of medical doctors focus on prevention, internal medicine, and if necessary, surgery. In addition, many medical doctors specialize in various areas including neurology, pediatric medicine, gastroenterology, etc.

Dentists are generally concerned with the health of their patients' teeth and gums. Prevention of oral pathologies via encouragement of preventative practices and routine cleanings are common place in dental practices. However, modern dentistry also focuses on screening for oral cancers and a variety of interventions that range from restoring the function of damaged teeth to fabricating appliances that relieve symptoms associated with obstructive sleep apnea.

Veterinary doctors provide medical care to small and large animals. Veterinary care emphasis include family pets and/or large animals/livestock. As is the case with most human medicine, veterinary medicine focuses on prevention, internal medicine, and surgery when necessary.

Pharmacists work with healthcare providers to prepare, dispense and review drugs to promote health. As such, pharmacists need to be aware of the medications that their patients are taking, as well as how these drugs interact with one another. While some pharmacists work in retail settings, such as Walgreens or CVS, others work in a hospital setting, the pharmaceutical industry, or government.

Physical therapists work with patients to restore and improve mobility following an injury or other medical condition that has limited mobility. In addition, physical therapy emphasizes prevention and management of conditions that can affect mobility and thus reduce quality of life. In many cases, physical therapy is effective at helping patients reduce or eliminate the amount of medicine they consume and/or avoid expensive surgeries.

Occupational therapists focus on helping patients enjoy a higher quality of life by facilitating the performance of everyday activities. Occupational therapists work with people of all age groups to help them deal with illnesses, disabilities, or injuries. For example, an occupational therapist focused on pediatrics may help a child with motor control issues improve their writing skills, while an occupational therapist focused on geriatrics may help an elderly patient cope with cognitive changes.

Physician assistants are healthcare providers who have general knowledge of medicine and work with other healthcare providers to care for patients. Physician assistants examine patients, diagnose illnesses, and prescribe medication. Many physician assistants specialize in areas such as pediatrics, surgery, etc. Physician assistants are becoming an increasingly common and important part of the healthcare infrastructure of the United States.

Podiatrists are healthcare providers who have general knowledge of podiatric medicine and work with other healthcare providers to care for patients' foot and ankle conditions. Podiatry assistants examine patients, diagnose foot and ankle illnesses, and provide appropriate treatments. Many podiatry assistants specialize in areas such as sports medicine, diabetic foot care, orthotics, and surgery. Podiatry assistants are becoming an increasingly important and essential part of the healthcare infrastructure in the United States, as foot and ankle conditions affect millions of people.

Chiropractic physicians are healthcare providers who specialize in the diagnosis, treatment, and prevention of neuromuscular-skeletal conditions, with a particular focus on the spine. Chiropractic physicians use a variety of techniques to help patients manage pain and improve function, including spinal adjustments, soft tissue therapies, and rehabilitative exercises. Many chiropractic physicians also provide nutritional counseling and lifestyle advice to promote overall wellness. Chiropractic physicians are an important part of the healthcare infrastructure of the United States, as they offer a non-invasive and drug-free approach to managing pain and improving musculoskeletal function.

The primary goal of HPAC is to facilitate successful matriculation of A&M-SA students to professional programs. The services that HPAC provides include, but are not limited to, advising students on pre-health matters, developing and providing access to materials relevant to pre-health students, formally interviewing qualified pre-health students, and producing committee-level letters of recommendation for qualified pre-health students. In addition, HPAC seeks to facilitate interactions between A&M-SA pre-health students and local/regional healthcare professionals.

While HPAC makes every effort to provide information and guidance that is correct and complete, errors and omissions occasionally occur even when guidance is being provided in good faith. As such it should be noted that should HPAC provide guidance or resources that are incomplete or in error, neither HPAC nor A&M—San Antonio are liable for any damages, real or perceived, that result.

In order to facilitate interactions between A&M-SA pre-health students and HPAC, the names, contact information, and areas of expertise for each HPAC member are given in the table below. For more information, see (https://www.tamusa.edu/academics/college-of-arts-and-sciences/life-sciences/health-professions-advisory-committee/index.html).

HPAC Member	**Contact Information**	**Area of Research**	**HPAC Advising Specialty**
Mr. Albert Alvarado Lecturer of MATH	alberto.alvarado@tamusa.edu (210) 784-2225 ext 2202	Statistics	Physical Therapy and Occupational Therapy
Dr. Bryan Bayles Assistant Professor Community Health	bbayles@tamusa.edu 201-784-2282	Public health	JAMP Director
Dr. David Brooks Instructional Assistant Professor BIOL	dbrooks@tamusa.edu (210) 784-2402	Circadian Rhythms; Acoustical surveying of Bats	Medical, Nursing
Dr. Kun Gou Associate Professor MATH	Kun.Gou@tamusa.edu 210-784-2293	Mathematical biology	Physical Therapy and Occupational Therapy
Dr. Qi Han Associate Professor MATH	Qi.Han@tamusa.edu 210-784-2262	Differential equations	Medical
Dr. Humberto Lara Villegas Instructional Assistant Professor BIOL	hlaravilleg@tamusa.edu 210-784-2474	Nanobiotechnology; Microbiology	Medical
Dr. Chris Mares Associate Professor BIOL Chair of HPAC	Chris.Mares@tamusa.edu 210-784-2265	Immunology & cell biology	Medical and Dental
Dr. Brenda Rushing Instructional Associate Professor BIOL	Brenda.Rushing@tamusa.edu 210-784-2212	Bacteriology	Physician Assistant and Medical
Dr. G. Robert Shelton Instructional Associate Professor CHEM	George.Shelton@tamusa.edu 210-784-2246	Physical organic chemistry & chemical education	Pharmacy

Dr. Brock Symons Assistant Professor EDKN	tsymons@tamusa.edu 201-784-2587	Neuromuscular performance and the preservation of lean body mass	Physical Therapy and Occupational Therapy
Ms. Marie Tipps Lecturer of BIOL	teresita.tipps@tamusa.edu 210-784-2230	Bat systematics and ecology; Pedagogy	Veterinary

II. ACADEMIC PLANNING FOR PRE-HEALTH STUDENTS

A. Overview of the pre-health experience at A&M-SA

In principle, a student could major in any discipline and be accepted into a variety of professional programs, provided they meet the entrance requirements. However, in practice, pre-health students typically major in biology, as it is usually easiest to complete the biology degree program and pre-health requirements simultaneously.

Irrespective of what major a pre-health student chooses, performance in natural science courses is heavily weighted in HPAC's evaluation of a student. However, exposure to the social sciences and humanities is also considered by HPAC and is often viewed favorably by professional school admissions committees. Thus, while HPAC does not encourage students to develop an unhealthy obsession with grades, HPAC is interested in whether students have a realistic chance of admittance to the professional programs that they aspire to attend. Therefore, it is inevitable that overall GPA and GPA in natural science courses are very important factors affecting HPAC's evaluation of a student. Students with GPAs below the average for their respective fields of interest will be advised by HPAC to explore how they can improve their academic performance. Moreover, in cases where sufficient improvement seems unlikely or impossible, students will be advised to shift their professional goals toward a different field. It is important to note that interventions that focus on improvement are most likely to be successful early in a student's academic career. As such, students should get input from their advisors and HPAC as early as possible and regularly receive such input thereafter.

Students who meet the following GPA criteria are eligible to register with HPAC:

- First-year students: No GPA requirement
- Sophomore classification: at least a 2.5 GPA
- Junior classification: at least a 2.75 GPA
- Senior classification: at least a 3.0 GPA

Regardless of the pre-health area, students vary in the rate at which they meet the requirements outlined by HPAC. A major factor in determining how quickly a student will progress through his/her pre-health requirements is how well-prepared the student is when they arrive at A&M—SA. In general, HPAC will advise students against rushing through their pre-health requirements if it feels that the student may not be able to

handle the academic load associated with doing so. When this occurs, HPAC strongly discourages students from worrying about “falling behind” in their pre-health requirements, as it is very common for students to apply to professional programs after they graduate. In general, academic years that pass between receiving the baccalaureate degree and matriculation into a professional program are referred to as “gap years”. It is critical for students who have been advised to proceed at a cautious pace to realize that gap years are not “bad”. In fact, gap years represent an opportunity for students to improve their candidacy via taking additional courses, gaining clinical experience, and a host of other possibilities. The important thing to remember is that professional schools are interested in the most qualified applicants and if it takes a student a couple of years beyond his/her time at A&M-SA to get to that level, so-be-it. However, with this said viewing gap years as a “break” is a mistake, as the point of gap years is to improve your candidacy, which is something that can only be achieved through intentional engagement in carefully chosen activities.

B. HPAC letter of recommendation application packet

One of HPAC’s primary functions is to produce committee-level recommendations about students for submission to professional school admissions committees. It is of the utmost importance to HPAC and the students that HPAC serves that these letters are accurate representations of a student’s abilities and potential. Routine production of flattering letters not grounded in reality will result in HPAC’s letters being discounted or ignored by admissions committees over time. Ultimately, the party that would be most damaged by this were it to occur is A&M-SA pre-health students who are strong candidates because the positive letters that HPAC produced on their behalves would be viewed with skepticism.

To address this issue, HPAC reserves its most time-consuming services (committee interviews and committee-level recommendations) for students who show clear evidence of competitiveness in their pre-health area of interest. In order to make this assessment, HPAC requires that any student wishing to receive a committee-level interview or letter submit an HPAC application packet. The components of this packet are listed and briefly described below.

Transcripts
Students should submit transcripts of their full academic record to HPAC. These transcripts must list all institutions of higher education that the student has attended, as well as the classes and grades taken and obtained at each of these institutions.

Guided highlights cover form
HPAC has developed a guided highlights cover form that is designed to provide HPAC with a quickly digestible overview of a pre-health student’s strengths and weaknesses. This form can be downloaded from the HPAC website.

Curriculum vitae

A curriculum vitae (CV) is a detailed description of an individual's academic and professional experience. Unlike a resume, CVs are not abbreviated or compressed to fit on a single page. Examples of effective CV formats and content can be found on the HPAC website (Link: https://www.tamusa.edu/mays/students/career-exploration.html).

Personal statement
Students must write a personal statement describing why they are interested in pursuing a career in their chosen area of healthcare. In general, students should match this statement as closely as possible to the requirements for any such statement required in application packets to the professional programs they are interested in. This statement should not exceed two single-spaced pages. Students are encouraged to consult with their HPAC advisers while working on their personal statements.

Signed waiver
Students must print out, sign, and date a waiver absolving HPAC of any liability for perceived or real inaccuracies in HPAC's advising process and materials. In addition, this waiver absolves HPAC from any liability associated with professional program application outcomes. Finally, students must waive their right to file a freedom of information request for any records or recommendations that HPAC produces regarding the student.

C. HPAC policy on transfer credit

Members of HPAC are most aware of the content, rigor, and competencies required in courses taught at A&M—SA. As such, HPAC believes that its judgements about students will be most sound, when the strong majority of courses on the student's transcripts were taken at A&M—SA. This sentiment is even stronger when it comes to natural science classes and is even stronger still when it comes to upper level (catalog number of 3000 or higher) natural science classes. A large number of transfer credits from "college in the classroom" programs and/or two-year colleges may be viewed negatively by professional program admissions committees. As such, it is preferable for natural science courses to be completed at a 4-year school. In light of these issues, HPAC reserves the right to decline providing committee-level interviews and/or recommendations for a student if it feels that a lack of a track record at A&M-SA makes the merit of the interview and/or recommendation unclear.

D. Joint Admission Medical Program (JAMP)

Overview of JAMP: In Fall 2019, A&M-SA began participating in the Joint Admission Medical Program—a statewide initiative funded by the Texas Legislature to provide a path to medical School for economically disadvantaged Texans. JAMP is a rigorous program with stringent admissions criteria and there are also several performance related criteria that students must meet in order to progress through JAMP. However, students who are admitted into and successfully progress through the program are guaranteed entrance into one of Texas' medical programs. JAMP offers a number of resources to students accepted into the program, including access to scholarships,

summer internships, clinical enrichment, and a MCAT preparation program. For more information on JAMP, please explore the links in Section VII-D. If you think you may meet JAMP's admission criteria (https://www.texasjamp.org/applying-to-jamp/criteria-guidelines.html), and are interested in pursuing entry into JAMP, please reach out to A&M—SA's JAMP Faculty Director, Dr. Bryan Bayles to arrange a discussion about your interest in JAMP.

III. ACADEMIC RECOMMENDATIONS FOR PRE-HEALTH STUDENTS

In this section of the handbook, we present information on admissions into the several pre-health areas currently supported by HPAC. The courses associated with each area are required (completed or in-progress) by HPAC in order for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

A. Medical doctor (Pre-med)

The following courses are highly recommended of students pursuing pre-med training.

1. BIOL 1106, General Biology I Laboratory
2. BIOL 1306, General Biology I—Attributes of Living Systems
3. BIOL 1107, General Biology II Laboratory
4. BIOL 1307, General Biology II—Biology of Organisms
5. Additional two advanced BIOL lectures (see list below)
6. CHEM 1111, General Chemistry I Laboratory
7. CHEM 1311, General Chemistry I
8. CHEM 1112, General Chemistry II Laboratory
9. CHEM 1312, General Chemistry II
10. CHEM 2123, Organic Chemistry I Laboratory
11. CHEM 2323, Organic Chemistry I
12. CHEM 2125, Organic Chemistry II Laboratory
13. CHEM 2325, Organic Chemistry II
14. CHEM 4341, Biochemistry I
15. PHYS 1101 or PHYS 2125, Physics I Laboratory

16. PHYS 1301 or PHYS 2325, Physics I
17. PHYS 1102 or PHYS 2126, Physics II Laboratory
18. PHYS 1302 or PHYS 2326, Physics II
19. MATH 2113, Calculus I Laboratory
20. MATH 2313, Calculus I
21. MATH 1342, Statistics[1] or BIOL 2415, Biostatistics
22. ENGL 1301 and ENGL 1302[2], Composition

In general, students who take additional BIOL courses after completing the General Biology Series are better prepared for the MCAT and the Biochemistry Series. As such, it is strongly advised that pre-med students take at least one of the following.

1. BIOL 2401 and BIOL 2402, Human Anatomy & Physiology I & II
2. BIOL 2411, Genetics
3. BIOL 2421, Introduction to Microbiology
4. BIOL 3408, Animal Physiology
5. BIOL 3409, Cellular Physiology

Strong grades in 4000-level science courses look very good on medical school applicant transcripts. Excellent options for pre-med students along these lines include the following.

1. BIOL 4401, Molecular Biology
2. BIOL 4402, Developmental Biology
3. BIOL 4406, Bacteriology
4. BIOL 4407, Virology
5. BIOL 4408, Immunology
6. BIOL 4409, Biology of Disease Vectors

In addition to the recommendations listed above, it is important for students to be aware that the MCAT covers the fundamentals of behavioral science. As such, pre-med students are strongly encouraged to take the following courses.

1. SOCI 1301, Principles of Sociology
2. PSYC 2301, General Psychology
3. PSYC 2350, Health Psychology

Sample schedules for pre-med students

The following sample schedules provide suggestions to students that will enable them to complete the HPAC-required pre-med courses within four years. Which schedule is most appropriate is primarily a function of the student's level of preparation prior to arriving at A&M-SA and the student's academic ability.

Schedule 1

[1] Some programs might require the statistics course be taught under MATH.
[2] For BIOL/CHEM majors ENGL 2311 may substitute for ENGL 1302

Complete the General Biology and General Chemistry Series during the first year and complete the Organic Chemistry Series during the 2nd year. Completion of the general chemistry series in the first year also may allow the student to qualify for the JAMP program. Students will then be free to take more advanced BIOL classes in their 2nd, 3rd, and 4th years and one or both of the components of the Biochemistry series in their 3rd year. In addition, students on this schedule could potentially complete the Physics Series in their 2nd or 3rd year. Students on this schedule should also be able to work in the MATH and ENGL requirements during their first three years in college. This is a demanding schedule and should only be attempted by hardworking, well-prepared, full time students who have few if any obligations outside of their studies at A&M—SA.

Schedule 2
Take the General Chemistry Series during the first year. Take the first course in the General Biology Series and the first course in the Organic Chemistry Series in summer. Then, take the other halves of the General Biology and Organic Chemistry series during the 2nd year. In some ways this schedule is not ideal because compressed summer courses are usually not 100% equivalent to their fall and spring counterparts. Moreover, the concentrated nature of summer courses may mean that retention of content is lower. Nevertheless, this schedule may work for strong students that want to ease into their A&M-SA experience by having a 1st year fall/spring workload that is light relative to Schedule 1.

Schedule 3
Take the General Biology Series and the General Chemistry Series during the first two years. Then, take the Organic Chemistry Series during the 3rd year. This schedule is recommended for students who are not well prepared in biology, chemistry, or both. It requires considerable planning to ensure that all of the HPAC-required pre-med courses are completed by the end of the 4th year.

Schedule 4
Take the General Chemistry Series during the first year. Take the General Biology Series during the second year and the first course in the Organic Chemistry Series during the 2nd year. Like schedule 3, this schedule requires considerable planning to ensure that the semester-by-semester course loads result in all of the HPAC-required pre-med courses being completed by the end of the 4th year.

Matriculate Averages for Allopathic Medicine Programs
1. Nationwide mean GPA = 3.75
2. Nationwide mean science GPA = 3.68
3. Nationwide mean MCAT[3] = 511.9.

Matriculate Averages for Osteopathic Medicine Programs
1. Nationwide mean GPA = 3.56
2. Nationwide mean science GPA = 3.47
3. Nationwide mean MCAT = 502.8

[3] MCAT's maximum score is 528.

B. Dentistry (Pre-dent)

The HPAC-recommended courses for pre-dent students are identical to those required for pre-med students. These courses are required (completed or in-progress) by HPAC in order for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

However, in addition to those required courses (list in the pre-med section), there are courses that are strongly recommended for pre-dent students. For example, completion of a sculpting or ceramics course is often viewed favorably by dental school admissions committees because these courses develop a student's abilities to do fine-motor work with his/her hands. Below is a list of courses that, while not required for a committee-level recommendation, pre-dent students are strongly encouraged to complete.

1. BIOL 2421, Introduction to Microbiology
2. BIOL 3408, Animal Physiology or BIOL 2401 & BIOL 2402, Human Anatomy & Physiology I & II
3. PSYC 2301, General Psychology
4. One 300-level ENGL class
5. A ceramics or sculpting class (currently not offered at A&M—SA)
6. A business management, finance, or accounting course

Matriculate Averages for Dental Programs

1. Nationwide mean GPA = 3.61
2. Nationwide mean science GPA = 3.54
3. Nationwide mean DAT = 20.8

C. Veterinary medicine (Pre-vet)

Below is a list of courses that are required (completed or in-progress) by HPAC in order for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level

recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

1. BIOL 1106, General Biology I Laboratory
2. BIOL 1306, General Biology I—Attributes of Living Systems
3. BIOL 1107, General Biology II Laboratory
4. BIOL 1307, General Biology II—Biology of Organisms
5. BIOL 2411, Genetics or BIOL 2421, Introduction to Microbiology
6. BIOL 2415, Biostatistics or MATH 1342, Statistics[4]
7. BIOL 3303, Animal Nutrition
8. CHEM 1111 General Chemistry I Laboratory
9. CHEM 1311, General Chemistry I
10. CHEM 1112, General Chemistry II Laboratory
11. CHEM 1312, General Chemistry II
12. CHEM 2123, Organic Chemistry I Laboratory
13. CHEM 2323, Organic Chemistry I
14. CHEM 2125, Organic Chemistry II Laboratory
15. CHEM 2325, Organic Chemistry II
16. CHEM 4341 or CHEM 4342, Biochemistry I or II
17. PHYS 1101 or PHYS 2125, Physics I Laboratory
18. PHYS 1301 or PHYS 2325, Physics I
19. PHYS 1102 or PHYS 2126, Physics II Laboratory
20. PHYS 1302 or PHYS 2326, Physics II
21. ENGL 1301 and ENGL 1302[5], Composition
22. SPCH 1315, Fundamentals of Public Speaking

In addition to these HPAC-recommended courses, it is also strongly recommended that pre-vet students complete the following coursework.

1. BIOL 3408, Animal Physiology
2. BIOL 3405, Vertebrate Zoology

In addition, it is important for students to realize that individual veterinary medicine programs may require additional coursework or clinical veterinary experience.

Matriculate Averages for Veterinary Medicine Programs

1. Nationwide mean GPA = 3.54

[4] Some programs might require the statistics course be taught under MATH.

[5] For BIOL/CHEM majors ENGL 2311 may substitute for ENGL 1302

2. Nationwide mean science GPA = 3.50
3. Nationwide mean GRE: verbal = 66th percentile, quantitative = 57th percentile, writing = 60th percentile

D. Doctor of pharmacy (Pre-pharm)

In general, obtaining a Doctor of Pharmacy (Pharm.D.) degree entails two or three years (71 to 72-credit hours) of undergraduate coursework and an additional four years of training within a school of pharmacy. Thus, it is common for people to earn a Pharm.D. without earning a bachelor's degree. However, many pharmacy schools have mechanisms for awarding a bachelor's degree after completing two years of coursework.

The following courses are required (completed or in-progress) for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

Minimal requirements for two or three years of undergraduate coursework

1. ENGL 1301 & ENGL 1302[6], Composition
2. SPCH 1315, Fundamentals of Public Speaking
3. ARTS 1301, ENGL 2345, ENGL 2388, or MUSI 1306.
4. PSYC 2301, General Psychology
5. HIST 1301 & HIST 1302, U.S. History
6. GOVT 2301 & GOVT 2302 Politics of the U.S.
7. BIOL 1106, General Biology I Laboratory
8. BIOL 1306, General Biology I—Attributes of Living Systems
9. BIOL 1107, General Biology II Laboratory
10. BIOL 1307, General Biology II—Biology of Organisms
11. CHEM 1111 General Chemistry I Laboratory
12. CHEM 1311, General Chemistry I
13. CHEM 1112, General Chemistry II Laboratory
14. CHEM 1312, General Chemistry II
15. CHEM 2123, Organic Chemistry I Laboratory

[6] For BIOL/CHEM majors ENGL 2311 may substitute for ENGL 1302

16. CHEM 2323, Organic Chemistry I
17. CHEM 2125, Organic Chemistry II Laboratory
18. CHEM 2325, Organic Chemistry II
19. PHYS 1101 or PHYS 2125, Physics I Laboratory
20. PHYS 1301 or PHYS 2325, Physics I
21. PHYS 1102 or PHYS 2126, Physics II Laboratory
22. PHYS 1302 or PHYS 2326, Physics II
23. MATH 1342, Statistics
24. MATH 2113, Calculus I Laboratory
25. MATH 2313, Calculus I

In addition to these recommended HPAC courses, some pharmacy programs may require some or all of the following courses.

1. BIOL 2421, Introduction to Microbiology
2. BIOL 4401, Molecular Biology
3. BIOL 3408, Animal Physiology or BIOL 2401 & BIOL 2402, Human Anatomy & Physiology I & II
4. CHEM 4341 and possibly CHEM 4342, Biochemistry I & II

Matriculate Averages for Pharmacy Programs

1. Nationwide mean GPA = 3.34
2. Nationwide mean science GPA = 3.21
3. Nationwide mean PCAT ~ 53rd percentile

E. Physical therapy (Pre-PT)

The A&M-SA pre-PT recommendations are for Entry Level Doctor of Physical Therapy (DPT) programs. The following courses are required (completed or in-progress) for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

1. BIOL 1106, General Biology I Laboratory
2. BIOL 1306, General Biology I—Attributes of Living Systems
3. BIOL 1107, General Biology II Laboratory
4. BIOL 1307, General Biology II—Biology of Organisms
5. BIOL 2401 Human Anatomy & Physiology I

6. BIOL 2402 Human Anatomy & Physiology II
7. CHEM 1111 General Chemistry I Laboratory
8. CHEM 1311, General Chemistry I
9. CHEM 1112, General Chemistry II Laboratory
10. CHEM 1312, General Chemistry II
11. PHYS 1101, General Physics I Laboratory
12. PHYS 1301, General Physics I
13. PHYS 1102, General Physics II Laboratory
14. PHYS 1302, General Physics II
15. ENGL 1301 and ENGL 1302[7], Composition
16. PSYC 2301, General Psychology
17. PSYC 2314, Lifespan Growth & Development; or EDKN 4322 Motor Dev & Motor Learning
18. MATH 1342 or BIOL 2415- some PT programs may require stats too be taken in a math department or in a biology department, so check each program's requirements.

Students should be aware that specific programs may have additional chemistry requirements and/or additional requirements in other areas. It is the student's responsibility to be aware of the specific requirements of the schools that they are considering applying to. Potential requirements beyond the HPAC-required courses listed above include the following.

1. Introductory philosophy
2. Introductory social science courses (e.g. SOCI 1301)
3. Introductory business course
4. Advanced courses in biology and/or psychology (e.g. PSYC 3305)
5. One or two courses in organic chemistry
6. Various types of clinical experience
7. Medical terminology (EDKN 3316)
8. Speech (SPCH 1315)
9. Reference letter from a physical therapist (preferred)

Matriculate Averages for Physical Therapy Programs

1. Nationwide mean GPA = 3.58
2. Nationwide mean science GPA = 3.44
3. Nationwide mean GRE: verbal ~ 53rd percentile, quantitative ~ 50th percentile, writing ~ 50th percentile

F. Occupational therapy (Pre-OT)

Some OT programs award master's degrees, while others are doctoral level OT programs. Be sure to research both career options and the requirements for the programs.

[7] For BIOL/CHEM majors ENGL 2311 may substitute for ENGL 1302

The following courses are required (completed or in-progress) for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

1. BIOL 1106, General Biology I Laboratory
2. BIOL 1306, General Biology I—Attributes of Living Systems
3. BIOL 1107, General Biology II Laboratory
4. BIOL 1307, General Biology II—Biology of Organisms
5. BIOL 2401 Human Anatomy & Physiology I
6. BIOL 2402 Human Anatomy & Physiology II
7. BIOL 2415, Biostatistics or MATH 1342, Statistics[8]
8. PSYC 2301, General Psychology
9. PSYC 2314, Lifespan Growth and Development
10. PSYC 4325, Abnormal Psychology
11. ENGL 1301 or ENGL 1302, Composition
12. SOCI 1301, Principles of Sociology
13. PHYS 1301 Physics I

Students should also be aware that specific programs may require chemistry, physics, and/or medical terminology. It is the student's responsibility to be aware of the specific requirements of the programs they are considering and to prepare accordingly.

G. Physician assistant (Pre-PA)

The following courses are required (completed or in-progress) for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

[8] Some programs might require the statistics course be taught under MATH.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

1. BIOL 1106, General Biology I Laboratory
2. BIOL 1306, General Biology I—Attributes of Living Systems
3. BIOL 1107, General Biology II Laboratory
4. BIOL 1307, General Biology II—Biology of Organisms
5. BIOL 2421, Introduction to Microbiology
6. BIOL 2401 Human Anatomy & Physiology I ~~or BIOL 3405, Vertebrate Zoology~~
7. BIOL 2402 Human Anatomy & Physiology II ~~or BIOL 3408, Animal Physiology~~
8. CHEM 1111 General Chemistry I Laboratory
9. CHEM 1311, General Chemistry I
10. CHEM 1112, General Chemistry II Laboratory
11. CHEM 1312, General Chemistry II
12. PSYC 2301, General Psychology
13. MATH 3301, Biostatistics
14. ENGL 1301 or ENGL 1302, Composition
15. An advanced biology course (such as Genetics or higher)
16. EDKN 3316 is recommended

Pre-PA students should note that some PA programs have additional chemistry requirements. Similarly, specific PA programs may require one or more courses in ethics, social science, and/or the humanities. Moreover, many PA programs require significant clinical experience that entails interactions with patients. In some cases up to 4,000 hours of clinical experience may be expected of applicants.

Matriculate Averages for Physician Assistant Programs

1. Nationwide mean GPA ~ 3.55
2. Nationwide mean science GPA ~ 3.50
3. Nationwide mean GRE: verbal ~ 59th percentile, quantitative ~ 52nd percentile, writing ~ 56th percentile

H. Podiatry (DPM)

The following courses are required (completed or in-progress) for a student to be eligible for a committee-level recommendation. If a student has not completed the following courses, the committee reserves the right to decline writing a letter to recommend the student. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation if they are missing recommended courses. These cases will be reviewed on a case by case basis.

These lists are based upon requirements that are *common to many professional programs in each respective area*. **However, it is important for students to realize that the exact requirements may vary from school to school and that some schools may have requirements beyond those given here.**

1. BIOL 1106, General Biology I Laboratory
2. BIOL 1306, General Biology I—Attributes of Living Systems
3. BIOL 1107, General Biology II Laboratory
4. BIOL 1307, General Biology II—Biology of Organisms
5. CHEM 1111, General Chemistry I Laboratory
6. CHEM 1311, General Chemistry I
7. CHEM 1112, General Chemistry II Laboratory
8. CHEM 1312, General Chemistry II
9. CHEM 2123, Organic Chemistry I Laboratory
10. CHEM 2323, Organic Chemistry I
11. CHEM 2125, Organic Chemistry II Laboratory
12. CHEM 2325, Organic Chemistry II
13. PHYS 1101 or PHYS 2125, Physics I Laboratory
14. PHYS 1301 or PHYS 2325, Physics I
15. PHYS 1102 or PHYS 2126, Physics II Laboratory
16. PHYS 1302 or PHYS 2326, Physics II
17. ENGL 1301, Composition I
18. ENGL 1302, Composition II

In addition to these HPAC required courses, it is it is also strongly recommended that pro-podiatry students complete coursework in statistics. Calculus courses cannot substitute for statistic courses.

1. MATH 1342 Introductory Statistics
2. MATH 3301 Biostatistics

Podiatry school requires applicants to take the MCAT. In general, students who take additional BIOL courses after completing the General Biology Series are better prepared for the MCAT and the Biochemistry Series. As such, it is strongly advised that pre-med students take at least one of the following.

1. BIOL 2401 and BIOL 2402, Human Anatomy & Physiology I & II
2. BIOL 2411, Genetics
3. BIOL 2421, Introduction to Microbiology
4. BIOL 3408, Animal Physiology
5. BIOL 3409, Cellular Physiology

In addition to the requirements and recommendations listed above, it is important for students to be aware that the MCAT covers the fundamentals of behavioral science. As such, pre-podiatry students are strongly encouraged to take the following courses.

1. SOCI 1301, Principles of Sociology
2. PSYC 2301, General Psychology
3. PSYC 2350, Health Psychology

Matriculate Averages for Podiatric Medicine Programs

1. Nationwide mean GPA = 3.4
2. Nationwide mean science GPA = 3.3
3. Nationwide mean MCAT = 493.9

G. Chiropractic Physician (DC)

The pre-requisite courses for chiropractic programs vary from school to school. Students should be aware of the requirements for each school where they intend to apply. In general most programs require 90 credit hours with a minimum of 24 hours in life and physical sciences. At least half of those should have labs. As the deadline for applications approaches, students are advised to consult their advisors to confirm their eligibility for a committee-level recommendation based on the courses they have taken. These cases will be reviewed on a case by case basis.

IV. EXTRACURRICULAR RECOMMENDATIONS & MILESTONES FOR PRE-HEALTH STUDENTS

This chapter describes experiences above and beyond coursework that are of importance to pre-health students as they develop credentials that will make their applications competitive. In addition, this chapter describes milestones for pre-health students in chronological order.

A. First year

During your first year it is important to do the following things.
1. Inform your Academic Advisor that you are pre-health, so that they can coordinate with HPAC.
2. Meet with an HPAC committee member whose advising specialty is in your area of interest.
3. Begin developing a strategy for building your credentials in ways that will make your application competitive.
4. Check to see if you qualify for JAMP, and if so, contact the JAMP director to discuss the application process.

Basic information
It is possible to major in essentially any area and gain entry into a health professional program. However, the course work associated with some majors overlap more with the

expectations of most health professional programs, and this is a factor that pre-health students should weigh when selecting a major.

The A&M-SA Pre-Health Society is a student organization that assists pre-health students in a variety of ways. It is a good idea to become active in this organization, as it is run by pre-health students for pre-health students. Other student organizations for pre-health students at A&M-SA include: Pre-dental Club, Pre-optometry Professional Society, Pre-veterinary Club, Jaguar Isotopes Chemistry Club, Kinesiology Club, Kinesiology Society for Rehabilitation Specialists, and Animal Hearts. However, it is also important to understand that professional school admissions committees like to see evidence of interests that go beyond traditional pre-health disciplines. They also like to see evidence of leadership potential. As such, it is helpful to be active on campus and in the community in a variety of ways, including ways that are not directly related to your aspiration to become a healthcare professional.

Strong study skills and habits are of critical importance to maintaining the high GPA required for entry into health professional schools. As such, you must be ready and willing to devote large amounts of time and effort to succeeding in your classes. A&M-SA provides a number of services including tutoring in a variety of subjects (Tutoring Center) and help with writing (Writing Center). It is a good idea to take advantage of these services as the need arises.

It is critically important for you to gain experience in the healthcare industry. The point of these experiences is that they will enable you to make the case to schools that you have decided a career in healthcare is worthwhile after many hours of hands-on experience in the industry. There are many avenues to obtaining these types of experiences including but not limited to: volunteering, internships, and research experiences.

At the end of your first year, you should check the requirements (https://www.texasjamp.org/criteria-guidelines.html) to see if you qualify for JAMP. If you do, contact the JAMP director,Dr. Bryan Bayles, to discuss the application process.

B. Sophomore year

During your sophomore year, it is important to complete the following tasks.
1. Meet with an HPAC committee member with advising expertise in your area
2. If you have not already done so, begin to develop a portfolio. Over time, this will develop into your application packet to professional schools.
3. Continue to develop and execute your strategy for producing the highest quality application possible.
4. Seek out and begin shadowing and volunteer opportunities, if you have not already done so.

Basic information

It is important to realize that health professional programs are extremely competitive. Moreover, you will be competing with people from all over the country. As such, not everyone who wants to attend a professional program gets accepted. It is therefore important for you to consider careers outside of your primary area of interest and perhaps outside of the healthcare industry altogether. This way if things don't work out the way you hope, you will have a solid "Plan B". In addition to considering the issue raised above, it is important for you to continue to participate in volunteer activities and to build upon the activities and experiences that you began during your first year.

C. Junior year

During your junior year, it is important to do the following.

1. You may plan to take the MCAT or some other aptitude/admission test at the end of your junior year. To be prepared for this test, you should complete as many of the HPAC required courses for your area of study as possible. Assuming you can just show up and take the test and do well enough to gain acceptance into the professional program of your choosing is a poor strategy. You should rigorously prepare for the admission test by taking practice tests, buying a preparatory book, and/or taking a preparatory course.
2. Continue to update your portfolio.
3. Continue to refine and execute your strategy for producing a highly competitive application.
4. Meet with an HPAC member with advising expertise in your area of interest and discuss with him/her whether you are ready to apply for a committee-level letter and/or mock interview from HPAC. If it is determined that you are ready, you should submit an application for an interview and/or letter to HPAC.
5. Continue and expand upon the activities and experiences that you engaged in as a first-year student and sophomore.
6. Apply! Depending on the school and program to which you apply, the application portal may be open starting in May of your junior year. **You should submit your application during the summer between your junior and senior year if you want to enroll the summer or fall immediately after your senior year.**

Basic information

1. Use the pertinent sections of this document, the online resources linked herein, and the internet to familiarize yourself with the admissions and aptitude test requirements for the programs of interest.

Skills & experiences expected of strong health professional program applicants

Academic

1. A firm foundation in the concepts and reasoning skills fundamental to the areas of natural science and mathematics recommended for your area of interest by HPAC
2. General understanding of basic concepts from the humanities and social sciences
3. Health-related experiences through participation in volunteer work (shadowing), internships, summer programs, etc.

4. Rigorous preparation for the required entrance exam (e.g., MCAT, DAT, or GRE) and completion of numerous practice exams
5. Participation in programs sponsored by HPAC and/or the Pre-Health Society that address interviewing, essay writing, and portfolio preparation

Motivation & personal qualities

1. Substantive participation in volunteer activities that are both health related and not directly related to the healthcare industry
2. The ability to communicate orally—including the ability to discuss complex issues with healthcare professionals and laypeople (i.e., patients)
3. Ability to interact effectively with people from diverse cultural backgrounds

Applying for an interview and/or recommendation from HPAC

Section IIB of this document describes the application packet that must be submitted to HPAC in order to receive a committee-level interview and/or letter of recommendation. The decision to submit such an application should be made in consultation with an HPAC member with advising expertise in your area of interest.

Should I retake the aptitude/admissions test?

In general, decisions about whether to retake an admission test, such as the MCAT, should be made in consultation with an HPAC member who has advising expertise in your area. While health professional schools take a holistic approach to assessing candidates, admissions tests are usually an important component of how candidates are judged and if your scores are well below the matriculation averages for your area of interest, acceptance into a program with your scores "as is" is not a realistic expectation.

How many programs should I apply to?

This is a rather complicated issue that depends on a number of factors including how strong your application is and how broad a geographic area you are willing to live in. Regardless of the number of programs you apply to, you should realistically consider your likelihood of gaining entry into the various programs that you consider. In general, it is wise to apply to a handful of programs that are toward the upper edge of programs that you have some chance of gaining acceptance to and a handful of programs that you feel very confident about. However, the bulk of your effort should focus on programs that are in the middle of the range of programs that you have a reasonable likelihood of being accepted into.

D. Senior year

Basic information

1. If you are aiming to attend a professional program at the start of the next academic year (i.e., no gap years), you should already have applied to the programs you are interested in. Many schools consider applications in the order they are received, as such, it is important to apply early.

2. If you are offered an interview by a program, you may wish to practice your interview skills. The Mays Center (https://www.tamusa.edu/mays/students/career-exploration.html) provides resources for this. Additionally, you should consider contacting your HPAC advisor for advice.
3. If you are unsuccessful in your bids for program acceptance, consider reapplying your senior year (provided your application is strong), or developing a strategy involving gap years (if your application would benefit from additional coursework and/or experience in the healthcare industry). When making this decision, you should consult with an HPAC member who has advising expertise in your area of interest.
4. If you are accepted into a health professional program, please inform the Chair of HPAC (Dr. Chris Mares). The committee would like to be notified of your successful application(s)!

E. Shadowing and Clinical Experiences

Basic information

Shadowing and clinical experiences are crucial for pre-med students as they provide hands-on exposure to the healthcare field and help students develop a better understanding of the day-to-day responsibilities of a physician or healthcare professional.

Shadowing allows students to observe the work of healthcare providers and get a firsthand look at patient interactions, diagnoses, and treatment plans. This exposure helps students gain a better understanding of the realities of the profession and can help them make informed decisions about their future careers in medicine.

Clinical experiences, such as volunteering in a hospital or clinic, provide pre-med students with the opportunity to interact with patients, assist healthcare providers, and gain hands-on experience with medical equipment and procedures. This type of hands-on learning is invaluable for students as it helps them develop important skills such as communication, empathy, and problem-solving, which are essential for success in the healthcare field.

Additionally, both shadowing and clinical experiences can be used to strengthen a pre-med student's application to medical school. Admissions committees often look for applicants who have a strong understanding of the field and have taken steps to gain real-world experience in healthcare.

In conclusion, shadowing and clinical experiences are essential components of a pre-med student's education and development. They provide students with a deeper understanding of the healthcare field and help them develop important skills that will be valuable in their future careers.

V. OTHER HEALTH-RELATED CAREER PATHS

There are many other careers within the health professions beyond those traditionally offered by medical and dental schools. Nursing, optometry, speech language pathology, and emergency medical care are just a few of the many health related fields available. Information for a select group of career paths is outlined below. For information on other potential health related career paths, please visit https://explorehealthcareers.org/.

A. Nursing

There are two traditional nursing programs in San Antonio. One is located at UT Health San Antonio (http://nursing.uthscsa.edu/students/ugrad.asp) and the other is based at the University of the Incarnate Word. (https://nursing-and-health-professions.uiw.edu/about-us/nursing-accreditation.html)

The websites provide general information about admission criteria and in some cases a complete profile of the incoming students.

Texas A&M University-San Antonio has recently developed an articulation agreement with UT Health San Antonio to facilitate the entry of students into their nursing program, and additional information about this agreement can be found on the HPAC website. There are many pathways leading into the nursing field and additional information can be found at (https://www.registerednursing.org/).

B. Optometry

Doctors of Optometry (O.D.) are the primary healthcare providers for the eyes. Optometrists diagnose, treat, and manage injuries, diseases and disorders that affect vision. Optometrists have typically completed a four year professional program after obtaining their bachelor's degree and some even complete some type of post-professional school training. The Association of Schools and Colleges of Optometry (https://optometriceducation.org/students-future-students/) and the American Optometric Association (https://www.aoa.org/about-the-aoa/what-is-a-doctor-of-optometry) are both excellent starting points for students with question about how to become an optometrist.

VI. POST-BACCALAUREATE & ALTERNATIVE CERTIFICATION PROGRAMS

Post-baccalaureate programs are available at numerous institutions. These programs can serve as a bridge for those students that have obtained a bachelor's degree but have not yet started their health profession training. These programs are mainly designed to aid those that need to enhance their academic record or those that are in

search of a career change. Academic record enhancing programs are meant for students that have already completed their pre-health science requirements as part of their bachelor's degrees. This type of program provides the student an opportunity to improve their performance in science coursework and could potentially make them more competitive for admission into health profession programs. Other programs are designed to serve as "leveling" programs and provide the requirements necessary for an applicant to make a career change into the health fields. There is quite a bit of variation in the types of programs offered. Many times, the programs will clearly indicate which type of student would benefit the most from their format. More information about academic enhancement programs and career change programs aimed for health-related programs can be found at the following websites:

- https://www.naahp.org/public-resources/student-resources
- https://www.aamc.org/career-development

VII. ONLINE SOURCES OF INFORMATION

A. A&M-SA resources

A&M-SA HPAC (https://www.tamusa.edu/academics/college-of-arts-and-sciences/life-sciences/health-professions-advisory-committee/index.html)
A&M-SA HPAC Handbook
A&M-SA Mays Center (https://www.tamusa.edu/mays/students/career-exploration.html)
A&M-SA Course Catalog and Student Handbook
A&M-SA Pre-health Society
A&M-SA Pre-Dental Club
A&M-SA Kinesiology Club
A&M-SA Kinesiology Society of Rehabilitation Specialists
A&M-SA Pre-Optometry Professional Society
A&M-SA Animal Hearts
A&M-SA Pre-Veterinary Club
A&M-SA Jaguar Isotopes- Chemistry Club

B. Useful websites

AAMC (Association of American Medical Colleges) - Aspiring Medical Doctors
https://students-residents.aamc.org/choosing-medical-career/medical-careers/aspiring-docs/

JAMP (The Joint Admission Medical Program) –assists highly qualified, economically disadvantaged students with scholarships, internships and professional development.
https://www.texasjamp.org/

NAAHP Student Resources (https://www.naahp.org/student-resources)

Explore Health Careers
http://explorehealthcareers.org/en/home

Summer Health Professions Education Program
http://www.shpep.org/

List of medical schools in the United States
https://en.wikipedia.org/wiki/List_of_medical_schools_in_the_United_States
http://www.mcattestscores.com/usmedicalschoolsmcatscoresGPA.html

C. Local & state information

Texas Health Education Service
https://www.txhes.com/

UT Health
https://www.utsystem.edu/institutions

Texas A&M Health Science Center
https://health.tamu.edu/

University of Houston Health Science Center
https://www.uth.edu

Texas Tech University Health Sciences Center
http://www.ttuhsc.edu/

Baylor College of Medicine
https://www.bcm.edu/

Paul L. Foster School of Medicine
http://elpaso.ttuhsc.edu/som/

University of North Texas Health Science Center
https://www.unthsc.edu/

Texas Medical Schools and Hospitals
https://www.texmed.org/Texas_Medical_Schools_and_Hospitals.aspx

List of medical schools in Texas (from Texas State University)
http://www.bio.txstate.edu/prehealthadvising/professionalprograms/allopathic.html
http://www.bio.txstate.edu/prehealthadvising/professionalprograms/osteopathic.html

UTRGV School of Podiatric Medicine
https://www.utrgv.edu/school-of-podiatric-medicine

D. Information on JAMP

JAMP Homepage
https://www.texasjamp.org

JAMP Program Criteria and Guidelines
https://www.texasjamp.org/prospective-students/criteria-guidelines.html

JAMP Application Process
https://www.texasjamp.org/prospective-students/application/index.html

Information for Current JAMP Students
https://www.texasjamp.org/current-students/index.html

E. Specific career paths

1. Allopathic & osteopathic medicine

Association of American Medical Colleges
https://www.aamc.org/

Application Service: American Medical College Application Service (AMCAS)
https://www.aamc.org/students/applying/amcas/

American Medical Association
https://www.ama-assn.org

American Association of Colleges of Osteopathic Medicine
http://www.aacom.org

Application Service: American Association of Colleges of Osteopathic Medicine Application Services (AACOMAS)
https://aacomas.liaisoncas.com/applicant-ux/#/login

American Osteopathic Association
http://www.osteopathic.org/Pages/default.aspx

Texas Medical Association
https://www.texmed.org/

Texas Osteopathic Medical Association
http://www.txosteo.org/

Texas Medical *and Dental* Schools Application *Service*

https://www.tmdsas.com/

2. Dentistry

American Dental Association
http://www.ada.org/en/

American Dental Education Association
http://www.adea.org/

Application Service: Associated American Dental Schools Application Service (AADSAS)
https://www.adea.org/GoDental/The_application_to_dental_school__ADEA_AADSAS.aspx

Texas Dental Association
https://www.tda.org/

Texas Medical *and Dental* Schools Application *Service*
https://www.tmdsas.com/

The University of Texas Dental Branch at Houston
https://dentistry.uth.edu/

The University of Texas Dental School at San Antonio
http://www.uthscsa.edu/academics/dental

Texas A&M Health Science Center: Baylor College of Dentistry[9]
https://dentistry.tamu.edu

3. Veterinary medicine

American Veterinary Medical Association
https://www.avma.org/Pages/home.aspx

Veterinary Medicine Career
https://explorehealthcareers.org/field/veterinary-medicine/

Association of American Veterinary Medical Colleges
http://aavmc.org/

Application Service: Veterinary Medical College Application Service (VMCAS)
https://www.aavmc.org/becoming-a-veterinarian/how-to-apply/

[9] In 1995 the college trustees voted to merge Baylor College of Dentistry with Texas A&M University, and in September 1996 the college became part of the A&M system. Baylor College of Dentistry is now a component of the Texas A&M University System Health Science Center.

Careers in Veterinary Medicine (AAVMC)
http://aavmc.org/Students-Applicants-and-Advisors/Careers-in-Veterinary-Medicine.aspx

Texas Veterinary Medical Association
https://www.tvma.org

Veterinary Colleges in Texas with Degree Program Overviews
https://study.com/veterinary_college_texas.html

Accredited Colleges of Veterinary Medicine
https://www.avma.org/sites/default/files/2022-02/colleges-accredited-1-2022.pdf

4. Pharmacy

American Pharmacists Association
http://www.pharmacist.com/

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

Application Service: Pharmacy College Application Service (PHARMCAS)
http://www.pharmcas.org/

American Pharmacists Association
http://www.pharmacist.com/

National Community Pharmacists Association
http://www.ncpanet.org/

Texas Pharmacy Association
http://www.texaspharmacy.org/

5. Physical therapy

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

Application Service: Physical Therapist Centralized Application Service (PTCAS)
http://www.ptcas.org/home.aspx

Texas Physical Therapy Association
http://www.tpta.org/

6. Occupational Therapy

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

American Occupational Therapy Foundation
http://www.aotf.org/

Occupational Therapist Centralized Application Service (OTCAS)
https://www.aota.org/education/find-a-school/ot-cas

Texas Occupational Therapy Association
http://www.tota.org/

7. Physician assistant

Physician Assistant Education Program
http://www.paeaonline.org/

American Academy of Physician Assistants
http://www.aapa.org/

Central Application Service for Physician Assistants (CASPA)
https://caspa.liaisoncas.com/applicant-ux/#/login

Texas Academy of Physician Assistants
https://tapa.org

Texas Gulf Coast Physician Assistant Association
https://www.tgcpaa.org

Central Texas Physician Assistant Society
https://www.centraltexaspasociety.org/

VIII. ENTRANCE & APTITUDE TESTS

A. Basic information

1. Medical College Admission Test (MCAT)

Registration: Prometric test centers will deliver the computerized MCAT on behalf of the AAMC multiple times per year, at hundreds of testing sites in North America and select sites in Europe, Asia, Australia, Africa and the Middle East. Registration is done online through the MCAT website: http://www.aamc.org/mcat.

Test Content for Exams

a. **Biological and Biochemical Foundations of Living Systems**- This section asks you to solve problems by combining your knowledge of biological and biochemical concepts with your scientific inquiry and reasoning skills. This section tests processes that are unique to living organisms, such as growing and reproducing, maintaining a constant internal environment, acquiring materials and energy, sensing and responding to environmental changes, and adapting. It also tests how cells and organ systems within an organism act independently and in concert to accomplish these processes, and it asks you to reason about these processes at various levels of biological organization within a living system.

This section is designed to:
 test introductory-level biology, organic chemistry, and inorganic chemistry concepts;
 test biochemistry concepts at the level taught in many colleges and universities in first-semester biochemistry courses;
 test cellular and molecular biology topics at the level taught in many colleges and universities in introductory biology sequences and first-semester biochemistry courses;
 test basic research methods and statistics concepts described by many baccalaureate faculty as important to success in introductory science courses; and
 require you to demonstrate your scientific inquiry and reasoning, research methods, and statistics skills as applied to the natural sciences.

b. **Chemical and Physical Foundations of Biological Systems**- This section asks you to solve problems by combining your knowledge of chemical and physical foundational concepts with your scientific inquiry and reasoning skills. This section tests your understanding of the mechanical, physical, and biochemical functions of human tissues, organs, and organ systems. It also tests your knowledge of the basic chemical and physical principles that underlie the mechanisms operating in the human body and your ability to reason about and apply your understanding of these basic chemical and physical principles to living systems.

This section is designed to:
 test introductory-level biology, organic and inorganic chemistry, and physics concepts;

 test biochemistry concepts at the level taught in many colleges and universities in first-semester biochemistry courses;
 test cellular and molecular biology topics at the level taught in many colleges and universities in introductory biology sequences and first-semester biochemistry courses;
 test basic research methods and statistics concepts described by many baccalaureate faculty as important to success in introductory science courses; and
 require you to demonstrate your scientific inquiry and reasoning, research methods, and statistics skills as applied to the natural sciences.

c. **Psychological, Social, and Biological Foundations of Behavior**- This section asks you to solve problems by combining your knowledge of foundational concepts with your scientific inquiry and reasoning skills. This section tests your understanding of the ways psychological, social, and biological factors influence perceptions and reactions to the world; behavior and behavioral change; what people think about themselves and others; the cultural and social differences that influence well-being; and the relationships between social stratification, access to resources, and well-being. The Psychological, Social, and Biological Foundations of Behavior section emphasizes concepts that tomorrow's doctors need to know in order to serve an increasingly diverse population and how behavior impacts health. Further, it communicates the need for future physicians to be prepared to deal with the human and social issues of medicine. This section is designed to

 test psychology, sociology, and biology concepts that provide a solid foundation for learning in medical school about the behavioral and sociocultural determinants of health;
 test concepts taught at many colleges and universities in first-semester psychology and sociology courses;
 test biology concepts that relate to mental processes and behavior that are taught at many colleges and universities in introductory biology;
 test basic research methods and statistics concepts described by many baccalaureate faculty as important to success in introductory science courses; and
 require you to demonstrate your scientific inquiry and reasoning, research methods, and statistics skills as applied to the social and behavioral sciences.

d. **Critical Analysis and Reasoning Skills**- This section will be similar to many of the verbal reasoning tests you have taken in your academic career. It includes passages and questions that test your ability to understand what you read. You may find this section to be unique in several ways, though, because it has been developed specifically to measure the analysis and reasoning skills you will need to be successful in medical school. The Critical Analysis and Reasoning Skills section achieves this goal by asking you to read and think about passages from a wide range of disciplines in the social sciences and humanities, followed by a series of questions that lead you through the process of comprehending, analyzing, and reasoning about the material you have read. Critical Analysis and Reasoning Skills passages are relatively short, typically between 500 and 600 words, but they are complex, often thought-provoking pieces of writing with sophisticated vocabulary and, at times, intricate writing styles. Everything

you need to know to answer test questions is in the passages and the questions themselves. No additional coursework or specific knowledge is required to do well on the Critical Analysis and Reasoning Skills section, but you, as the test taker, may find yourself needing to read the passages and questions in ways that are different from the reading required in the textbooks you used in most pre-health courses or on tests like the SAT Critical Reading exam. Passages for the Critical Analysis and Reasoning Skills section—even those written in a conversational or opinionated style—are often multifaceted and focus on the relationships between ideas or theories. The questions associated with the passages will require you to assess the content, but you will also need to consider the authors' intentions and tones and the words they used to express their points of view.

This section is designed to
 test your comprehension, analysis, and reasoning skills by asking you to critically analyze information provided in passages;
 include content from ethics, philosophy, studies of diverse cultures, population health, and a wide range of social sciences and humanities disciplines; and
 provide all the information you need to answer questions in the passages and questions themselves.

Fee: Standard registion is $330. Fee assistance program recipients pay $135.

MUST BE TAKEN BY ALL STUDENTS WHO INTEND TO APPLY TO ALLOPATHIC, OSTEOPATHIC, OR PODIATRIC COLLEGES

2. Dental Admissions Test (DAT)

Registration: Prometric test centers will deliver the computerized DAT on behalf of the ADA multiple times per year, at hundreds of testing sites in North America and select sites in Europe, Asia, Australia, Africa and the Middle East. Registration is done online through the ADS website: https://www.ada.org/education/testing/exams/dental-admission-test-dat/apply-for-the-dental-admission-test-dat.

Test Content:

Test Section	**Time**
Tutorial (optional)	15 minutes
Survey of Natural Sciences	90 minutes (100 questions)
Perceptual Ability (PAT)	60 minutes (90 questions)
Break (optional)	30 minutes
Reading Comprehension	60 minutes (50 questions)
Quantitative Reasoning	45 minutes (40 questions)
Post-Test Survey	15 minutes
Total Test Time	**5 hours**

a. Survey of Natural Sciences - consists of subject matter covered by first-year courses in Biology, Inorganic Chemistry and Organic Chemistry.

b. Reading Comprehension - contains three passages typical of the material that must be read in the first year of dental school. These passages are followed by questions which can be answered from the readings.
c. Quantitative Reasoning - measures the candidates' ability to reason with numbers, to manipulate numerical relationships and to deal intelligently with quantitative materials.
d. Perceptual Ability (PAT) - includes non-verbal perceptual types of test items. Angle discrimination, form development cubes, orthographic projections, apertures, and paper folding.

Sample test items are available online.

Fee: $495.00

For more information, go to https://www.ada.org. Look especially at the documents titled "DAT Guide", "Testing Checklist", and "FAQ" for useful information.

3. Optometry Admission Test (OAT)

Registration: Prometric test centers will deliver the computerized OAT multiple times per year, at hundreds of testing sites in North America and select sites in Europe, Asia, Australia, Africa and the Middle East. Registration is done online through the ASCO website: http://www.opted.org and clicking on "OAT". The most desirable time for applicants to take the exam is no later than the fall of their senior year in college. If applicants must take it later, some schools will not accept the results of tests after the February immediately preceding the August in which they hope to enroll.

Test Content:

Test Section	**Time**
Tutorial (optional)	15 minutes
Survey of Natural Sciences	90 minutes
Reading Comprehension	60 minutes
Break (optional)	30 minutes
Physics	50 minutes
Quantitative Reasoning	45 minutes
Post-Test Survey	15 minutes
Total Test Time	**4 hours, 50 minutes**

a. Survey of Natural Sciences – consists of subject matter covered by first year courses in Biology, Inorganic Chemistry, and Organic Chemistry.

b. Reading Comprehension - tests the ability to read, organize, analyze and to remember new information. Subject matter will concentrate on areas of organic chemistry and basic sciences.
c. Quantitative Reasoning - a measure of basic skills in arithmetic, algebra, geometry, trigonometry, and quantitative reasoning.
d. Physics - standard topics covered in a first year college – physics course.
Sample test items are available online.

Fee: $510.00

For more information: go to http://www.opted.org and click on "OAT". Make sure to click through to https://www.ada.org/oat/index.html for detailed information including the "OAT Guide", "Testing Checklist", and "FAQ".

4. Graduate Record Examination (GRE)

Registration: Prometric test centers will deliver the computerized GRE multiple times per year, at more than 1000 testing sites in North America and select sites in Europe, Asia, Australia, Africa and the Middle East. It is computer delivered year round and paper delivered three times a year. Registration is done online through the GRE website: http://www.gre.org.

Test Content:

The GRE online center has a wealth of information about the test, preparation materials and software, etc.

Fee: $220.00

For more information: go to http://www.gre.org.

5. Pharmacy College Admissions Test (PCAT)

Registration: Registration is through the PCAT website (http://www.pcatweb.info)
PCAT Information: 1-800-622-3231

Test Content:

Test Section	Time	Topics
Writing	30 minutes	1 prompt
Biological Processes	45 minutes	General Biology, Microbiology, Human Anatomy and Physiology (48 Questions, Qts.)
Chemical Processes	45 minutes	General Chemistry, Organic Chemistry, Basic Biochemistry Processes (48 Qts.)
Break (Optional 15 minutes)		
Critical Reading	50 minutes	Comprehension, Analysis, Evaluation (48 Qts)

Quantitative Reasoning	50 minutes	Basic Math, Algebra, Probability & Statistics, Calculus (48 Qts.)
Total Test Time	**220 min.**	**192 multiple-choice, 1 writing prompt**

NOTE: Sample test items and additional review information are available online. The PCAT testing is **computer-based.** The content and subtest scoring are the same as the previous paper-based version of the test. Testing will take place at the Pearson VUE Test Centers.

Fee: $210.00 Late Registration: $49.00 (non-refundable)
For each additional score report: $20.00

For more information: go to http://www.pcatweb.info.

B. MCAT & GPA data on Texas medical applicants and matriculates

The following tables present statistics from 2019 for students who applied and were accepted to Texas medical schools. These data may prove useful in evaluating one's own performance relative to others who have applied in the past. However, data should be interpreted with the assistance of an advisor or member of the Committee. Other factors, such as interview performance and timing of the application, also affect acceptance rates. Students are encouraged to provide information to the Committee regarding test scores and acceptance/rejection to schools so that more data can be provided for future applicants. Click here for updated statistics: https://www.txhes.com/apply/tmdsas/application-stats.html

Academic Statistics

		Applicants		Matriculants	
		#	%	#	%
GPA Distribution	4.00 - 3.91	1151	19%	607	37%
	3.90 - 3.81	861	14%	341	21%
	3.80 - 3.71	803	13%	257	16%
	3.70 - 3.61	719	12%	185	11%
	3.60 - 3.51	668	11%	119	7%
	3.50 - 3.41	476	8%	52	3%
	3.40 - 3.31	373	6%	33	2%
	3.30 - 3.21	280	5%	16	1%
	3.20 - 3.01	368	6%	7	0%
	3.00 - 2.76	220	4%	3	0%
	2.75 - 2.51	77	1%	0	0%
	2.50 - Under	33	1%	0	0%
	Not Reported	24	0%	2	0%
	Average	**3.61**		**3.80**	

BCPM GPA Distribution	4.00 - 3.91	1039	17%	526	32%
	3.90 - 3.81	632	10%	245	15%
	3.80 - 3.71	613	10%	240	15%
	3.70 - 3.61	582	10%	181	11%
	3.60 - 3.51	544	9%	151	9%
	3.50 - 3.41	474	8%	107	7%
	3.40 - 3.31	469	8%	67	4%
	3.30 - 3.21	340	6%	36	2%
	3.20 - 3.01	519	9%	44	3%
	3.00 - 2.76	413	7%	19	1%
	2.75 - 2.51	235	4%	3	0%
	2.50 - Under	167	3%	1	0%
	Not Reported	26	0%	2	0%
	Average	**3.49**		**3.73**	

New MCAT (After 2015)

		Applicants		Matriculants	
		#	%	#	%
New MCAT Score Distribution	Over 521	112	2%	49	3%
	518-521	356	6%	146	9%
	514-517	683	11%	311	19%
	510-513	980	16%	412	25%
	506-509	1124	19%	375	23%
	502-505	920	15%	209	13%
	498-501	685	11%	77	5%
	494-497	411	7%	2	0%
	490-493	264	4%	0	0%
	486-489	153	3%	0	0%
	Below 486	143	2%	0	0%
	Not Reported**	222	4%	41	3%
	Average	**505.9**		**510.8**	

** Applicants with only MCAT A scores are reported as "Not Reported" in this distribution chart

IX. HPAC INTERVIEW & RECOMMENDATION PROCEDURES

A. Overview

In this chapter, we describe the policies and procedures that HPAC has developed for deciding whether a student will be granted a committee-level mock interview and/or a committee-level letter of recommendation. We then go on to describe the structure and format of HPAC's mock interviews, how a student's performance is assessed, and how HPAC returns feedback to students about their performance. Finally, we discuss the procedure that HPAC has developed for producing letters of recommendation.

B. Review of student application packets

The structure of the application packet for a committee-level interview and/or letter is described in Section IIB of this document and the forms needed to complete the packet are available on the HPAC website. The rubric that will be used to assess student application packets is also available through HPAC's website. Students are advised to look this rubric over carefully as they complete their application packets, as it spells out what the committee will be focused on during the evaluation process. In short, students will be assessed along five primary dimensions of performance and experience in a holistic manner. These dimensions include: (1) Grades and GPA, with a particular emphasis on performance in natural science courses, (2) Extracurricular experiences directly related to the healthcare industry, (3) Extracurricular and leadership experiences not directly related to the healthcare industry, (4) Ability to communicate clearly and persuasively in writing, and (5) Overall impression that the application packet gives of the student's experience, skillset, and organizational/administrative abilities. Each of these aspects of a student's application packet will be assessed on a five-point scale ranging between: "deficient" (1 point), "weak" (2 points), "fair" (3 points), "good" (4 points), "superior" (5 points). The mean score across these six categories will be calculated and applications with average scores ≤ 3.5 will not be granted a committee-level mock interview or letter. Incomplete applications, including applications that lack a signed waiver, will be returned to the student without review. Once a student's application packet has been assessed by HPAC, brief written feedback explaining the outcome will be returned to the student.

C. The mock interview process

The basic structure of HPACs mock interviews is as follows.

1. The interview panel will consist of three or four HPAC members.
2. When possible, the panel will be composed of HPAC members who are unfamiliar with the student, so as to avoid bias and mimic the process of interacting with unfamiliar people in a formal setting.
3. The interview will last for approximately 30 minutes and will be followed by a 10-15-minute deliberation, during which the student is absent from the room.
4. The deliberation process will be followed by a 15-20-minute period during which, the student receives formal feedback from the panel.

D. The letter of recommendation process

1. Drafting the letter

The following procedures govern how HPAC goes about producing a committee-level letter when a student has been granted this service.

A. In their application packets, students are allowed to request that a particular member of HPAC serve as their Letter Drafter.
B. The requested Drafter has the right to decline this request.
C. If no Drafter preference is indicated, or if a requested Drafter declines, an effort will be made to identify a willing Drafter who is familiar with the student.
D. If no one on HPAC is familiar with the student, or if everyone who is familiar with the student declines serving as the Drafter, the Chair of HPAC will draft the letter.
E. When the Chair is not the Drafter, the Drafter will submit their letter to the Chair, who will then have an opportunity to edit the letter and present it to HPAC for final approval.

2. Handling differences of opinion

In the event that HPAC members differ in opinion regarding the tone or wording of a letter, the procedure will be as follows.

A. An attempt will be made to find a compromise between the parties that are in disagreement and this process will be arbitrated by the panel of HPAC members that interviewed the student.
B. In the event that the difference of opinion cannot be resolved through arbitration, ultimate decisions regarding the wording and/or tone of the letter will reside with the interview panel. In the event that the panel is split, the Chair of HPAC will break the tie.

3. Letter ratification

All letters that are approved by HPAC will be stamped with the HPAC seal and signed by the Chair. Digitized copies of the letter will be submitted though the appropriate centralized application service, or by other means when appropriate, by the Chair of HPAC.