Missouri State UNIVERSITY

PATHWAYS TO HEALTHCARE PROFESSIONS
HANDBOOK

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MissouriState.edu/Prehealth/

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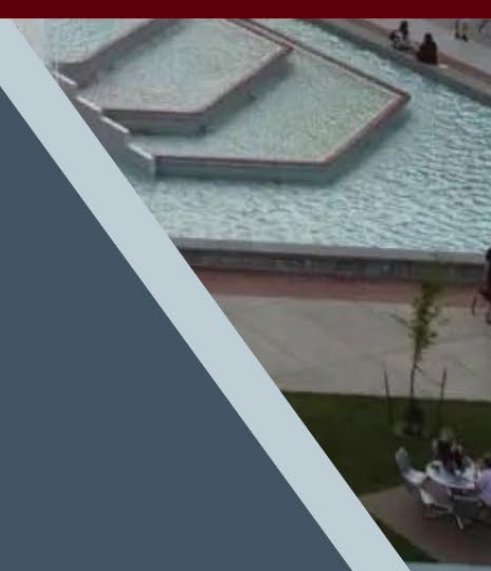
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Welcome Letter

Hello! My name is Ross Hawkins and I'm the Director of the Academic Advising & Transfer Center. Welcome to Missouri State University! I am excited you are interested in learning more about Pathways to Healthcare Professions. This handbook was created with YOU in mind. Whether you are a student trying to choose a healthcare pathway or major, a family or support member wanting to learn more about what the university offers, or a high school counselor looking for general information on healthcare professions for one of your students, this handbook is a great starting point.

In the Pathways to Healthcare Professions Handbook, you will find useful guides on pre-professional options. The guides will allow you to have information at your fingertips regarding career definitions, coursework, highlights, activities, resources, and organizations. You will also learn why Missouri State University is an outstanding place to be for healthcare professions, including state-of-the-art facilities, undergraduate and graduate research opportunities, exceptional faculty, and affordability compared to other institutions in and out of state.

As previously mentioned, the handbook is a great starting point. However, it does not replace the need or desire to meet with an academic advisor to learn more about programs and ask questions. We seek to provide the best and most relevant information possible and to provide consistent advising across the university. The Academic Advising & Transfer Center is staffed with full-time professional advisors experienced in assisting admitted and prospective students who have not yet chosen an academic major or healthcare path. We strive to learn more about students to help them make informed academic and career decisions. Please don't hesitate to schedule an in-person or Zoom advising meeting by visiting the staff online scheduler tool. If you have chosen a major and would like to meet with an advisor in that area, please visit the associated departmental webpage to find the appropriate point of contact.

Finally, as you review this information, please feel free to contact me at RossHawkins@MissouriState.edu if you have any questions or would like to provide feedback. At Missouri State University, we are always looking for new and improved ways to engage students, family and support members, alumni, and community stakeholders. Many thanks to all of you. We look forward to continuing to connect with you.

Ross Hawkins

Ross Hawkins

Director

Academic Advising & Transfer Center

Staff Online Scheduler Tool:
https://www.missouristate.edu/Advising/academic-advising-and-transfer-center-staff.htm

Why Missouri State University?

Many students choose Missouri State University to nurture aspirations for a career in healthcare.

Reasons to choose Missouri State include:

Academic Programs: Missouri State University offers a wide array of undergraduate options that help students prepare for professional school. Additionally, Missouri State offers professional degrees in the following areas: Athletic Training, Occupational Therapy, Physical Therapy, and Physician Assistant Studies. Also, Missouri State serves as a satellite campus for the University of Missouri-Kansas City Pharm. D. program.

Nurturing Faculty and Cutting-Edge Facilities: The dedication of faculty to the success of their students is unmistakable. The expertise, mentorship, and support they offer is invaluable, making Missouri State an environment in which students thrive. Coupled with cutting-edge facilities and modern laboratories, the university provides an ideal platform to receive hands-on, up-to-date training, preparing students for the dynamic world of healthcare.

Location: Springfield's strategic location within Missouri is advantageous for those seeking a career in healthcare. It is home to numerous medical centers, offering a wealth of opportunities for internships and clinical rotations. This proximity to healthcare institutions ensures that you can gain real-world experience while pursuing your degree.

Interdisciplinary Approach: Missouri State University promotes an interdisciplinary approach to healthcare education. This means you'll have the chance to collaborate with students from diverse healthcare backgrounds, fostering a holistic understanding of healthcare systems and practices. Such interdisciplinary experiences will better prepare you to navigate the complexities of the healthcare field.

Scholarships and Financial Support: Understanding the financial challenges that come with healthcare education, Missouri State University offers various scholarships and financial aid options. This support will enable you to focus on your studies and clinical experiences rather than the financial burden, making your journey more feasible.

Research Opportunities: The university actively engages in research that impacts healthcare. Whether you aspire to participate in cutting-edge research projects, publish your findings, or engage in healthcare-related community service, Missouri State University provides a supportive environment for your healthcare aspirations.

Community Engagement and Values: The university's commitment to community engagement and fostering a culture of integrity and compassion aligns seamlessly with the values of a future healthcare professional. Service, empathy, and ethical practice are at the foundation of the Missouri State community.

Path to Success in Healthcare: Find inspiration in the success stories of Missouri State University alumni who have made substantial contributions to the healthcare industry. Their journeys exemplify the university's ability to prepare students for fulfilling and impactful careers in healthcare.

Personal Growth and Goals: Your journey at Missouri State University will be a transformative experience, both academically and personally. Embrace the challenges, the diversity, and the growth opportunities, all of which will mold you into a compassionate, skilled, and resilient healthcare professional.

Missouri State University is not just an institution for higher learning; it is a catalyst for your journey toward a rewarding and impactful healthcare career. It is where your passion for healthcare can flourish, your skills can be honed, and your ambitions can become reality. Join the Missouri State University community and pursue your dreams of making a difference in the field of healthcare.

Pre-Professional Tracks

A pre-professional track is not a major at Missouri State University, but it is an indicator of your professional interest and career path. Students often choose a major based on the professional school's prerequisite coursework requirement. Pre-professional students can choose any major and should choose based upon their interest in that field of study.

> **Please note:** While Missouri State University offers a BSN (Bachelor of Science in Nursing) program, this has vastly different requirements than the pre-professional tracks covered here. For this reason, nursing will not be included in this handbook.

Choosing a Major

Pre-health professional concentrations can be added to a student's degree information. These concentrations recognize that the student plans to pursue a higher degree but does not modify degree requirements for the declared bachelor's degree. Examples of pre-health professional concentrations include pre-athletic training, pre-chiropractic, pre-dentistry, pre-health, pre-med, pre-occupational therapy, pre-optometry, pre-pharmacy, pre-physical therapy, pre-physician assistant studies, and pre-vet medicine. There are many relevant certificates that can enhance application competitiveness. Students may also be interested in certificates for personal interest. Consulting with an advisor can help guide certificate exploration.

To declare a pre-health professional concentration or an undergraduate certificate, use the online form on the Academic Advising & Transfer Center website.

Pre-Professional Advising

Missouri State University utilizes a hybrid model for academic advising. Some academic colleges rely exclusively on professional staff advisors while others rely on staff and faculty advisors. If you have chosen a major it is recommended that you schedule an appointment with an advisor in that college.

When a student has chosen a pre-health professional concentration and is undecided on a major, it is important for the student to connect with a faculty advisor who has expertise in the concentration. If you need to be connected with a faculty advisor with expertise in a concentration please contact the Academic Advising & Transfer Center.

A Competitive Candidate

Though characteristics of competitive candidates vary by school and discipline, most programs will consider a candidate's academic profile (grades and standardized test scores), observation or paid clinical experience, and letters of recommendation as part of the application process. Often the format for letters of recommendation includes a ranking of the candidate's demonstrated professional behaviors. Professional behaviors common to all healthcare professionals include the following:

Commitment to Learning: the ability to self-assess, self-correct, and self-direct; identify needs and sources of learning; continually seek new knowledge and understanding.

Interpersonal Skills: the ability to interact effectively with patients, families, colleagues, other healthcare professionals, and the community; deal effectively with cultural or ethnic diversity issues.

Communication Skills: the ability to communicate effectively (speaking, body language, reading, writing, listening) for varied audiences and purposes.

Effective Use of Time: the ability to obtain the maximum benefit from a minimum investment of time and resources.

Use of Constructive Feedback: the ability to identify sources of and seek out feedback; to effectively use and provide feedback for improving personal interaction.

Ethical and Professional Behavior: the ability to exhibit appropriate ethical and professional conduct and to represent the profession effectively.

Responsibility: the ability to fulfill commitments, be accountable for actions and outcomes, and to persevere to achieve goals.

Critical Thinking: the ability to question logically; identify, generate, and evaluate elements of logical argument; recognize and differentiate facts, illusions, assumptions; distinguish the relevant from the irrelevant.

Stress Management: the ability to identify sources of stress, develop effective coping behaviors, and adapt well to change.

Problem Solving: The ability to recognize and define problems, use imagination and creativity to solve problems, analyze data, develop and implement solutions, and evaluate outcomes.

Leadership: the ability to take initiative and motivate or guide others; generates ideas and plans or shares a vision for the future.

General Timeline

Below you will find a general guide to recommended pre-professional student activities beginning with the first year on campus. As you navigate this document, always keep in mind that what is presented to you is based upon general information for *all* pathways. You will want to be sure to confirm specific timelines with your desired programs/disciplines of interest. For example, if you are interested in the Missouri State University Physician Assistant Studies Program, you will note that this program begins in January. This means that the application due dates for this program will look different than that of a program that begins in June or August.

Year One

Meet with a pre-professional advisor to begin making a personalized plan and goals and get to know your faculty better.

- This all starts with classroom engagement – attend class, ask/answer questions, and demonstrate an interest in the course content.
- Be sure all interactions with faculty or staff members are courteous and professional.

Begin taking prerequisite/foundation coursework specific to your area of interest.

- Remember that necessary science and math courses usually have prerequisites and may take several semesters to complete.
- Be aware of the types of credit you may have previously taken – dual credit, Advanced Placement (AP), or part of an International Baccalaureate (IB) program – as well as what specific courses/subjects your prior credit may have covered. Keep in mind that many professional programs require that courses used to meet prerequisites have a grade (rather than just a P/NP), meaning a course taken for credit by examination (AP, College Level Examination Program [CLEP], or IB) may have to be repeated for a grade.

Join professional student organizations on campus.

- Examples of those we offer include: Athletic Training Students Association, Pre-Dental Society, Pre-Med Society, Pre-Occupational Therapy Club, Pre-Physical Therapy Society, Pre-Physician Assistant Society, and Pre-Veterinary Club.

Begin shadowing/accumulating clinical hours associated with your area of interest.

- Springfield is home to two major healthcare systems – Cox and Mercy – both of which allow students to observe.

- Consider beginning an observation log where you can document times, dates, locations, and contact information for professionals observed.
- Some programs, such as Physician Assistant Studies, expect students to have *paid* work experience in healthcare. You may want to begin searching for paid positions early so that you can accumulate the number of hours needed for program application by the time you complete your degree.

Begin connecting to the community and the campus by engaging in community service and student activities/organizations.

- Community service is a great way to give back to the community and help demonstrate a desire to make a difference in the lives of others. Our Center for Community Engagement is a great place to start if you are trying to get connected to opportunities.

Begin researching your chosen discipline and the available professional programs of study, including becoming familiar with admission requirements (academic and non-academic).

- Professional websites, such as those linked within this document, will have sections specifically for students. You can start learning more about current professional issues, professional trends, specialty areas, and more.
- Additionally, you will want to start identifying the specific requirements for your programs of interest. Knowing these prerequisites for admission will help you build your course schedules moving forward.
    - If you believe you may be interested in medicine, become familiar with the pre-med committee on campus and how/when students connect to it. Visit the [Pre-Medical Committee website](#) for more information.

Create your résumé.

- It's a great idea to begin a document that can be updated as you move through your semesters on campus. Having a résumé "in progress" allows you to add any relevant experiences or activities as they happen, which will make life easier when you are trying to complete applications to professional programs.
- The Career Center is a great place to go for help.

Achieve competitive grades in all undergraduate courses (not only prerequisite courses).

- Most generally, professional programs will require a 3.0 GPA minimally to apply. A general recommendation for GPA to be competitive is to remain within the 3.5–4.0 range.

Year Two

Continue completion of prerequisite coursework and focus on achieving the best GPA possible.

- Prerequisite courses may become more complex and discipline-specific. Be sure to keep your course sequences in mind as you work through requirements.
- You will also likely want to be deciding on a major area of study by the end of year two if you have not already done so.
- Continue accumulating and documenting observation/paid clinical experience.
- Continue accumulating and documenting community service experience.
- Consider engaging in leadership opportunities if you have not already done so.
- Continue building relationships with faculty and staff on campus.

Begin the preparation process for any standardized exams you may be required to take for admission to your professional program.

- Investigate exam costs, test availability, and structure (length of test/time needed to complete the test, identification of a test center, the number of times per year it is available, whether you are permitted to retest, etc.).
- Find available study aids, which may include test prep books, online resources, and test preparation classes.

Years Three and Four

Finalize the list of programs you plan to apply to.

- Generally, students will apply to four to eight professional programs.
  - Think about the financial costs associated with program applications, as this may help you determine which programs and how many you will choose.
- It is recommended that you attend open houses for your programs (if available) to make sure you have all the information you need to take your next steps.

Schedule and complete your admission exam to professional school (if required). These exams may include:

- Graduate Record Exam (GRE)
- Dental Admission Test (DAT)
- Medical College Admission Test (MCAT)
- Optometry Admission Test (OAT)
    - The timing of the exam will largely depend on the application timeline(s) for your program(s) of interest. You may be completing your exam as early as the middle of year three or as late as the middle of year four.

Subscribe to any professional centralized application services (CAS system), if used, once your application cycle begins.

- Common CAS systems include:
    - Athletic Training Centralized Application System (ATCAS)
    - American Dental Education Association Associated American Dental Schools Application Service (ADEA AADSAS)
    - American Medical College Application Service (AMCAS)
    - American Association of Colleges of Osteopathic Medicine Application Service (AACOMAS)
    - Occupational Therapist Centralized Application Service (OTCAS)
    - Optometry Centralized Application Service (OptomCAS)
    - Pharmacy College Application Service (PharmCAS)
    - Physical Therapist Centralized Application Service (PTCAS)
    - Central Application Service for Physician Assistants (CASPA)
    - Veterinary Medical College Application Service (VMCAS)
- Most CAS systems have an annual subscription fee that is charged to students. These systems also tend to delete user information at the close of each cycle, so it is recommended that you only subscribe when you intend to apply to programs.
- Because CAS is centralized, that means all participating programs will see the information you submit here. For that reason, you should not tailor any general items (like a personal statement) to a specific school/program.
- Not all programs use CAS systems, so it will be important to understand the application process for all programs/disciplines in which you are interested.

Consider participating in a mock interview exercise.

- The Career Center offers these opportunities to students at no cost. Your pre-professional student organization may also provide resources related to these exercises.

Prepare your <u>personal statement</u>.

- In Appendix B, you will find space available for you to begin jotting down thoughts about what you would want to include in your personal statement.
- Become familiar with the expectations of your programs. In some instances, you may receive a prompt (or several prompts), while other programs will have vague expectations. Follow all guidelines regarding length, items to include, etc.
- The Writing Center on campus, located within the Bear CLAW, will review personal statements and provide feedback.
- Seek guidance from pre-professional advisors and faculty members.

Begin finalizing your résumé for your application(s).

- Not all programs require a résumé as part of their application requirements, but if a program uses a CAS system, you will enter elements of your résumé as part of the application. Verify that it is as up to date as possible and reflects the extent of your experiences during college.

Secure your references.

- Many programs require students to provide a minimum of three letters of recommendation as part of their application materials. Your programs may provide guidance on these, such as requiring that a certain number of your letters be written by academic faculty. If you have not been provided with guidelines, consider references who can comment comprehensively about your knowledge, skills, and abilities.
- It is good practice to prepare a "request packet" when asking faculty and/or professionals to serve as references. This would include your résumé, unofficial transcripts, a list of programs you are applying to, your personal statement (or a statement of interest), and any other pertinent details you may want to provide (test scores, etc.).
- Provide references with ample time to write letters. Anywhere from six to ten weeks is standard.
- If you are requesting a letter from the pre-med committee, please be sure to follow the instructions provided on <u>the pre-med committee's website</u>.

Finish completing the prerequisite coursework, degree requirements, and professional program application.

- Keep in mind that some prerequisite coursework may be permitted to be in-progress at the time you submit your application (this varies by program). However, all coursework must be completed by the time you are enrolled in a professional program.

- Ensure that all non-academic program admission requirements, such as clinical observation or work experience, are completed by application deadlines.
- Ensure that your professional program application is submitted by the published deadline.

Professional Programs

A professional program helps prepare you for careers in specific fields, such as medicine, pharmacy, law, business, or social work.[1] These programs vary in length depending on the program and the institution that you attend.[1] Professional degrees and licensure are required before an individual can begin their practice in a specific occupation.

Knowing which professional field fits your career interests is the first step. While Missouri State University does not offer every professional program covered in this handbook, we offer 10 different pre-professional tracks to prepare you for the following professional programs:

- Athletic Training
- Chiropractic
- Dentistry
- Medicine
- Occupational Therapy
- Optometry
- Pharmacy
- Physical Therapy
- Physician Assistant Studies
- Veterinary Medicine

Professional programs offered at Missouri State University include: *Athletic Training, Occupational Therapy, Physical Therapy, and Physician Assistant Studies.*

ATHLETIC TRAINING

ATHLETIC TRAINING

Athletic trainers serve as specialists who work with physicians to educate and treat patients. Through examination and rehabilitation, athletic trainers are able to treat acute or chronic injuries or medical conditions as well as educate patients on wellness and injury prevention. Athletic trainers can work in several different environments, including educational settings, hospitals, fitness centers, physicians' offices, for professional sports teams, or for performing artists. They can also work with military or law enforcement. An athletic trainer's work schedule is dependent on what their work environment looks like. Most work full-time, and some must work during evenings and on weekends. Some athletic trainers have to travel often on the job.[2]

Professional Degree Required to Practice

- Master's degree in Athletic Training

General Requirements for Graduate Admission
(Requirements vary by program.)

- Bachelor's degree
- Cumulative GPA of 3.00 or above
- Comprehensive exam (during final year)
- Non-thesis research-based project (Missouri State University)[4]

Preparation to Practice

- Pass national board exam to become professionally credentialed
- Obtain state-awarded licensure
- Any other requirements vary by state.[2]

Athletic Trainers are...

confident, detail-oriented, compassionate, communicative, and decisive.[3]

Application Checklist

- Create an Athletic Training Centralized Application System (ATCAS) account
- Complete ATCAS application
- Submit official transcripts using Transcript Request Form
- Provide course description for all prerequisite courses and upload to ATCAS
- Request and obtain two letters of recommendation (one from an academic source and one from an athletic trainer that supervised your observation hours)
- Complete support information section in ATCAS (observation hours, experiences, achievements, and evidence of Emergency Cardiac Care [ECC] certification)
- Pay application fee[4]

Most Common Pre-Athletic Training Requirements

Course	Number of Courses
English/Writing Composition	Two courses
Introductory Biology	One to two courses
Anatomy (with lab)	One course
Physiology (with lab)	One course
General Chemistry (with lab)	One course
Introductory/General Psychology	One course
General Physics (with lab)	One course
College Math	One course
Statistics	One course
Biomechanics	One course*
Exercise Physiology	One course*
Medical Terminology	One course*
Human Nutrition	One course*

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found here.

Missouri State University's Athletic Training Program Prerequisites

Resources

Professional and Student Organizations

- Missouri Athletic Trainers' Association (MoATA)
- National Athletic Trainers' Association (NATA)
- Missouri State University Athletic Training Students Association (ATSA)

Additional Resources

- ATCAS Applicant Help Center
- Commission on Accreditation of Athletic Training Education

AUDIOLOGY

AUDIOLOGY

Audiologists are health care providers specializing in diagnosing, treating, and preventing hearing and balance disorders in people of all ages[4,5]. Audiologists can work in a variety of settings, including hospitals, specialty clinics, physician's offices, and schools (primary, secondary, and higher education). Audiologists perform clinical services including newborn hearing screenings, activating and programming cochlear implants for children and adults, working with cancer patients experiencing hearing loss from treatment, and assisting veterans with hearing loss or tinnitus (ringing in the ears)[5].

Professional Degree Required to Practice

- Doctoral degree in Audiology

General Requirements for Graduate Admission
(Requirements vary by program.)

- Bachelor's degree
- Cumulative GPA of 3.00 or above
- Specific pre-requisites as dictated by individual graduate programs. This may include:
  o Standardized entrance exams such as the Graduate Record Exam (GRE)
  o Professional observation
  o Academic and professional letters of reference

Preparation to Practice

- Pass national board exam to become professionally credentialed
- Obtain state-awarded licensure
- Additional requirements vary by state[4]

Audiologists are...

compassionate, patient, collaborative, analytical, and demonstrate good problem-solving skills[4]

Application Checklist

- Create a Communication Sciences and Disorders Centralized Application Service (CSDCAS) account or follow instructions provided by institution if CSDCAS is not used.
- Submit required application components which could include:
  o All official transcripts
  o Essay question responses
  o Personal statement and/or resume
  o Professional/academic letters of recommendation
  o Standardized test scores
  o Evidence of professional observation
- Ensure technical standards of profession can be met

Most Common Pre-Audiology Requirements

Course	Number of Courses
College Math (Pre-Calculus or above recommended)	One course
Statistics	One course
Behavioral Science	One course
Biological Science	One course
Physics or Chemistry Science	One course
Anatomy and Physiology of Speech	One course*
American Sign Language	One course*
Normal Language Development	One course*
Aural Rehabilitation	One course*
Hearing and Speech Science	One course*
Audiology	One course*
Speech and Language Disorders in Adults or Children	One course*
Phonetics	One course*

*Requirements vary by university. Review requirements on programs' dedicated sites.

**Some programs require a degree in Communication Sciences and Disorders or significant coursework in the areas covered by this degree.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Missouri State University's Audiology Program Prerequisites

Resources

Professional and Student Organizations

- National Student Speech-Language Hearing Association (NSSLHA)
- Student Academy of Audiology
- Missouri Academy of Audiology
- Missouri Speech-Language-Hearing Association
- American Speech-Language-Hearing Association (ASHA)

Additional Resources

- American Academy of Audiology
- CSDCAS Application Center

CHIROPRACTIC

CHIROPRACTIC

Chiropractors assess and treat patients with disorders of the neuromusculoskeletal system (involving nerves, bones, muscles, ligaments, and tendons).[6] These healthcare professionals seek to examine, diagnose, and treat disorders to prevent them from negatively influencing the overall health of patients. They are "trained to recommend therapeutic and rehabilitative exercises, as well as to provide nutritional, lifestyle, and dietary counseling."[8] Chiropractors can work in a variety of environments, including solo practices, group practices, and self-employment.[6] While most chiropractors work full-time, some choose to work part-time.[6]

Professional Degree Required to Practice

- Doctor of Chiropractic (DC)

General Requirements for Graduate Admission
(Requirements vary by program.)

- At least three years of undergraduate study

- GPA of 3.00 or above

- Shadowing and clinical hours
- Specific pre-requisites as dictated by individual programs. This may include:

  o Professional observation and/or experience

  o Academic and professional letters of reference

  o Standardized entrance exams such as the Graduate Record Exam (GRE)

Preparation to Practice

- Pass national board exam and become credentialed by the National Board of Chiropractic Examiners (NBCE)

- Obtain state-awarded professional license

- Additional requirements vary from state to state.[6]

Most Common Pre-Chiropractic Requirements

Course	Number of Courses
English/Writing Composition	Two courses
General Biology or Zoology (with lab)	One to two courses
Anatomy (with lab)	One course
Physiology (with lab)	One course
General Chemistry (with lab)	One to two courses
Organic Chemistry or Biochemistry (with lab)	One course
Introductory/General Psychology	Varies*
General Physics	One to two courses
Biomechanics/Kinesiology/Exercise Physiology	Varies*
Additional Humanities/Social Sciences	Varies*

*Programs vary; generally speaking, students must complete a minimum of 24 credit hours of life and physical science coursework where half of those courses have labs.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Resources

Professional and Student Organizations

- Missouri Chiropractic Physicians Association (MCPA)
- American Chiropractic Association

Additional Resources

- The Clinical Compass
- The Journal of Chiropractic Education

DENTISTRY

DENTISTRY

Dentists seek to prevent, diagnose, and treat oral diseases and conditions. They do this by educating patients and evaluating their oral health. Dentists are trained to give exams, in addition to installing fillings, crowns, and implants. They perform extractions and corrective surgeries as well. A dentist can work in several different environments. These include within their own practice, alongside a small staff, with partners in their practice, and as an associate dentist for an established practice. Some dentists choose a specialty to work in, while others practice general dentistry.[9]

Professional Degree Required to Practice

- Doctor of Dental Surgery (DDS)
                    or
- Doctor of Medicine in Dentistry (DMD)

General Requirements for Graduate Admission
(Requirements vary by program)

- Bachelor's degree

- Cumulative GPA of 3.00 or above

- Specific pre-requisites as dictated by individual programs. This may include:

    o Completion of the Dental Admission Test (DAT)
    o Professional observation and/or clinical experience*
    o Academic and professional letters of reference

Preparation to Practice

- Pass the National Board Dental Exam to become professionally credentialed.
- Obtain state-awarded professional license
- A professional residency may be required
- Additional requirements vary by state[9]

Dentists are...

personable, empathetic, trustworthy, artistic, and have strong leadership skills.[10]

Application Checklist

- Create an American Dental Education Association Associated American Dental Schools Application Service (ADEA AADSAS)* account or follow institutional directions if centralized application is not used
- Submit required application materials which could include:
  o All official transcripts
  o Personal statement/ essay and/or resume
  o Professional/academic letters of reference
  o Standardized test scores such as the Dental Admission Test
  o Evidence of observation and/or clinical experience
- Complete admission interview if applicable
- Ensure technical standards of the profession can be met

*Texas Medical & Dental School Application Services (TMDSAS) in the state of Texas

Most Common Pre-Dental Requirements

Course	Number of Courses
English/Writing Composition	Two courses
College Math	One course
Statistics	One course
General Biology or Zoology (with lab)	Two courses
Molecular Biology/Genetics	One course
Anatomy (with lab)	One course
Physiology (with lab)	One course
Microbiology (with lab)	One course
Immunology	One course*
Histology	One course*
Cell Biology	One course
General Chemistry (with lab)	Two courses
Organic Chemistry (with lab)	Two courses
Biochemistry (with lab)	Two courses
Humanities/Social Sciences	One course
General Physics (with lab)	Two courses

*It is recommended that pre-dental students take courses or engage in activities that develop fine motor skills.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Resources

Professional and Student Organizations

- Missouri Dental Association (MDA)
- National Dental Association (NDA)
- Missouri State University Pre-Dental Society

Additional Resources

- ADEA AADSAS Applicant Help Center
- American Student Dental Association

MEDICINE

MEDICINE

Physicians are medical professionals who assess patients to establish diagnoses and provide treatments for injuries or illnesses. They seek to keep patients' overall health maintained as well. Physicians primarily identify and attend to patients' medical conditions, while surgeons perform operations on patients to remedy injuries and diseases. A physician could work in a clinical setting (physician's office or hospital) or a non-clinical setting (government agency, non-profit organization, or insurance company).[11, 12]

Professional Degree Required to Practice

- Doctor of Allopathic Medicine (M.D.)
  or
- Doctor of Osteopathic Medicine (D.O.)

General Requirements for Graduate Admission
(Requirements vary by program)

- Bachelor's degree
- Cumulative GPA of 3.00 or higher
- Completion of the Medical College Admission Test (MCAT)
- Specific pre-requisites as dictated by individual programs. This may include:
  o Completion of the Medical College Admission Test (MCAT)
  o Professional observation and/or clinical experience
  o Academic and professional letters of reference (letter from the institutional Pre-Med Committee is typically requested)
  o Admission interviews often required

Preparation to Practice

- Complete an approved internship or residency program
- Pass national licensing exam such as the U.S. Medical Licensing Examination (USMLE) or the Comprehensive Osteopathic Medical Licensing Examination (COMLEX) to become professionally credentialed
- Obtain state-awarded professional license
- Additional requirements vary by state[11]

Physicians are…

communicative, empathetic, straightforward, professional, thorough, and knowledgeable.[13]

Application Checklist

- Create American Medical College Application Service (AMCAS) account and/or American Association of Colleges of Osteopathic Medicine Application Service (AACOMAS)* or follow institutional directions if centralized application is not used
- Submit required application materials which could include:
  o All official transcripts
  o Essay question responses
  o Personal statement and/or resume
  o Professional/academic letters of reference
  o MCAT scores
  o Evidence of Observation and/or clinical experience
- Ensure technical standards of the profession can be met

*Texas Medical & Dental School Application Services (TMDSAS) in the state of Texas

Most Common Pre-Medicine Requirements

Course	Number of Courses
English/Writing Composition	Two courses
General Biology or Zoology (with lab)	Two courses
Genetics	One course
Anatomy (with lab)	One course
Physiology (with lab)	One course
Cell Biology or Microbiology (with lab)	One course
General Chemistry (with lab)	Two courses
Organic Chemistry (with lab)	Two courses
Biochemistry (with lab)	One course
Introductory/General Psychology	One course
General Physics (with lab)	Two courses
Introductory/General Sociology	One course
Statistics	One course
College Math	One course

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Resources

Professional and Student Organizations

- Missouri State Medical Association (MSMA)
- American Medical Association (AMA)
- Missouri State University Pre-Med Society

Additional Resources

- 2024 AMCAS Applicant Guide
- Medical School Headquarters
- Missouri State Pre-Medical Committee

OCCUPATIONAL THERAPY

OCCUPATIONAL THERAPY

Occupational therapists are health care providers who work with clients across the lifespan to enhance quality of life. They perform clinical evaluations on clients and determine intervention plans for those who are experiencing barriers in their daily lives. The goal of occupational therapists is to help clients be more independent in personally meaningful activities by gaining the strength and skills to meet their daily needs. In addition to supporting clients in these ways, these professionals advise clients regarding accessibility accommodations that should be made in the home, at their place of work, or at the school they attend.[14] Occupational therapists can work in various settings, including telehealth, the client's home, community settings, hospitals, and numerous types of childhood and care facilities.[14]

Professional Degree Required to Practice

- Master's degree in Occupational Therapy

General Requirements for Graduate Admission
(Requirements vary by program)
- Bachelor's degree
- Cumulative GPA of 3.00 or above
- Complete fieldwork and experiential requirements
- Comprehensive exam[15]

Preparation to Practice

- Pass the National Board for Certification in Occupational Therapy (NBCOT) exam to become professionally credentialed

- Additional requirements vary by state[15]

Occupational therapists are...

creative, patient, passionate, observant, and adaptable.[16]

Application Checklist

- Create an account with the Occupational Therapist Centralized Application Service (OTCAS) or follow institutional directions if a centralized application system is not used
- Submit all required application materials which could include:
  - All official transcripts
  - Personal statement and/or resume
  - Professional/academic letters of reference
  - Evidence of professional observation
- Ensure technical standards of the profession can be met
- Interview if required

Most Common Pre-Occupational Therapy Requirements

Course	Number of Courses
English/Writing Composition	Two courses
General Biology or Zoology (with lab)	One to two courses
Anatomy (with lab)	One course
Physiology (with lab)	One course
General Chemistry (with lab)	One to two courses
Introductory/General Psychology	One course
Medical Terminology	One course
Statistics	One course
College Math	One course
Abnormal Psychology	One course
Developmental/Lifespan Psychology	One to two courses
Introductory/General Sociology or Cultural Anthropology	One course
General Physics (with lab)	Varies*
Communication Studies	One course

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Missouri State University's Occupational Therapy Program Prerequisites

Resources

Professional and Student Organizations

- Missouri Occupational Therapy Association (MOTA)
- American Occupational Therapy Association (AOTA)
- Missouri State University Pre-Occupational Therapy Club

Additional Resources

- OTCAS Applicant Help Center
- The American Occupational Therapy Foundation

OPTOMETRY

OPTOMETRY

Optometrists are professionals that specialize in diagnosing and treating conditions that affect the eye, in addition to providing primary vision care. They are licensed to prescribe medications or corrective lenses to patients to manage abnormal conditions or diseases.[17] Optometrists give guidance to patients to not only care for their eye health, but also to maintain their general health. Optometrists' potential work environments include offices and optical goods stores. They can either choose to work full-time or part-time, but schedules may vary in the evenings and during weekends. Optometrists can specialize in primary care, cornea and contact lenses, or ocular disease.[18]

Optometrists are…

passionate, confident, motivated, collaborative, and communicative.[19]

Professional Degree Required to Practice

- Doctor of Optometry (OD)

General Requirements for Graduate Admission
(Requirements vary by program)

- Bachelor's degree
- Cumulative GPA of 3.00 or above
- Specific pre-requisites as dictated by individual programs. This may include:
    o Standardized admission exam such as the Optometry Admission Test (OAT) or Graduate Record Exam (GRE)
    o Professional observation and/or experience
    o Academic and/or professional letters of reference
    o Admission interviews often required

Preparation to Practice

- Pass national board exam through the National Board of Examiners in Optometry (NBEO) to become professionally credentialed
- Obtain state-awarded professional license
- Additional requirements vary by state[18]

Application Checklist

- Create an Optometry Centralized Application Service (OptomCAS) account or follow institutional directions if a centralized application is not used
- Submit required application materials including:
    o All official transcripts
    o Personal statement and/or resume
    o Professional/academic letters of reference
    o Optometry Admission Test (OAT) or Graduate Record Exam (GRE) scores
    o Evidence of observation and/or professional experience
- Complete application interview if required
- Ensure technical standards of the professional can be met

Most Common Pre-Optometry Requirements

Course	Number of Courses
English/Writing Composition	Two courses
General Biology or Zoology (with lab)	Two courses
Anatomy (with lab)	One course
General Chemistry (with lab)	One course
Organic Chemistry (with lab)	Two courses
Biochemistry (with lab)	One course
Introductory/General Psychology	One course
General Physics (with lab)	One course
Microbiology (with lab)	One course
Organic Chemistry (with lab)	One course
Statistics	One course
Calculus	One course

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Resources

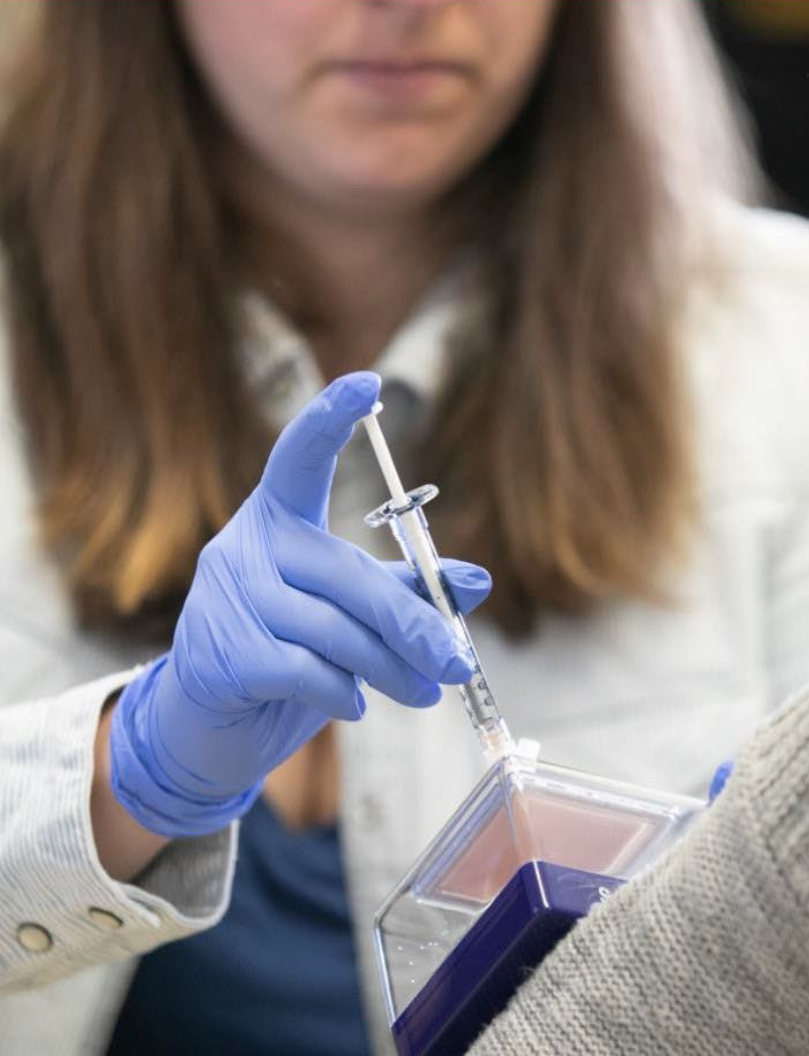*Professional and Student Organizations*

- Missouri Optometric Association (MOA)
- American Optometric Association (AOA)
- American Optometric Student Association (AOSA)
- Missouri State University Pre-Optometry Club

Additional Resources

- OptomCAS Applicant Help Center

PHARMACY

PHARMACY

Pharmacists are trained to provide patients with prescription medications and important information about those medications. To meet patients' needs, pharmacists maintain and review medical records to ensure unfavorable reactions do not occur as a result of taking their prescription medications. They keep patients informed about proper dosages and potential side effects. Before prescribing medication to a patient, pharmacists assess and ensure the accuracy of what is being prescribed. In addition to prescribing medications, pharmacists are licensed to vaccinate patients and provide advice regarding patients' general health. A pharmacist can work in a hospital, retail store, nursing home, assisted living facility, or a university.[20]

Professional Degree Required to Practice

- Doctor of Pharmacy (Pharm.D.)

General Requirements for Graduate Admission
(Requirements vary by program)

- Completion of specific pre-requisites as dictated by individual programs which may include:
    - Specific coursework, particularly in areas of math and science
    - Earn a minimum GPA (typically 3.00)
    - Academic/professional letters of reference
    - Admissions interview

Preparation to Practice

- Pass the Multistate Pharmacy Jurisprudence Examination (MPJE)
- Pass the North American Licensure Examination (NAPLEX) for individual state licensure
- Additional requirements vary by state[24]

Pharmacists are…

patient, adaptable, diligent, professional, and analytical.[21]

Application Checklist

- Create a Pharmacy College Application Service (PharmCAS) account
- Submit required application materials including:
    - All official transcripts
    - Personal statement and/or resume
    - Professional/academic letters of reference
- Ensure technical standards of the profession can be met
- Interview for program

**The Pharmacy College Admission Test (PCAT) will be officially retired in 2024 and will no longer be an admission requirement for pharmacy programs.

Most Common Pre-Pharmacy Requirements

Course	Number of Courses
English/Writing Composition	Two courses
General Biology or Zoology (with lab)	One course
Anatomy (with lab)	One course
Physiology (with lab)	One course
Cell Biology	One course
General Chemistry (with lab)	Two courses
Organic Chemistry (with lab)	Two courses
Biochemistry (with lab)	One course
Introductory/General Psychology	One course
General Physics (with lab)	Two courses
Communication Studies	One course
Microbiology (with lab)	One course
Additional Humanities/Social Sciences	Varies*
Medical Terminology	Varies*
Economics	Varies*
Calculus	One course
Statistics	One course
Genetics	Varies*

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Missouri State University and UMKC's Pharmacy Program Prerequisites

Resources

Professional and Student Organizations

- Missouri Pharmacy Association (MPA)
- American Pharmacists Association (APhA)
- American Society of Health System Pharmacists (ASHP)
- Missouri State University Pre-Pharmacy Society

Additional Resources

- PharmCAS Applicant Help Center
- Pharmacy is Right for Me
- Missouri State University PharmD Reverse Transfer

PHYSICAL THERAPY

PHYSICAL THERAPY

Physical therapists are professionals who play an integral role in providing patients with treatment and rehabilitation to increase mobility and minimize pain. Patients that need physical therapy typically have conditions such as chronic illnesses or injuries that inhibit their ability to perform physical activity. Physical therapists evaluate and diagnose patients, establish treatment goals, create treatment plans, and keep track of patients' progress. They also keep patients and their families informed about expectations and obstacles they may face. A physical therapist has the option of working in several different environments, including private offices, clinics, hospitals, patients' homes, and nursing homes.[22]

Physical Therapists are…

patient, collaborative, compassionate, communicative, and optimistic.[23]

Application Checklist

- Create a Physical Therapist Centralized Application Service (PTCAS) account or follow institutional directions if a centralized application is not used
- Submit all required application materials including:
    - All official transcripts
    - Personal statement and/ or resume
    - Professional/academic letters of reference
    - Standardized test scores such as the Graduate Record Exam (GRE)
    - Evidence of professional observation across multiple settings
- Complete interview for program if required
- Ensure the technical standards of the profession can be met

Professional Degree Required to Practice

- Doctor of Physical Therapy (DPT)

General Requirements for Graduate Admission

(Requirements vary by program)

- Bachelor's degree
- Cumulative GPA of 3.00 or above
- Completion of specific pre-requisites as dictated by individual programs. This may include:
    - Standardized entrance exam such as the Graduate Record Exam (GRE)
    - Professional observation (multiple settings encouraged)
    - Academic and/or professional letters of reference
    - Admission interview

Preparation to Practice

- Pass the National Physical Therapy Examination (NPTE) to become professionally credentialed
- Obtain state-awarded professional license
- Additional requirements vary by state[22]

Most Common Pre-Physical Therapy Requirements

Course	Number of Courses
English/Writing Composition	Two courses
General Biology or Zoology (with lab)	Two courses
Anatomy (with lab)	One course
Physiology (with lab)	One course
General Chemistry (with lab)	Two courses
Introductory/General Psychology	One course
General Physics (with lab)	Two courses
College Math	One course
Statistics	One course
Abnormal/Advanced Psychology	One course
Medical Terminology	Varies

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Missouri State University's Physical Therapy Program Requirements

Resources

Professional and Student Organizations

- Missouri Physical Therapy Association (MPTA)
- American Physical Therapy Association (APTA)
- Association of Student Physical Therapists (ASPT)
- Missouri State University Pre-Physical Therapy Society

Additional Resources

- PTCAS Applicant Help Center
- The American Council of Academic Physical Therapy

PHYSICIAN ASSISTANT

PHYSICIAN ASSISTANT

A physician assistant is a professional who evaluates patients, orders the administration of diagnostic examinations, reviews results, and establishes diagnoses for patients. They are trained to treat a variety of conditions in patients. Physician assistants are also licensed to prescribe medications and advise patients about treatment and their general health. They keep track of patients' records and progress over time by updating their medical histories. It is important for them to stay up to date on new developments regarding the treatments that are available to patients to provide the best possible care. Physician assistants can work in physicians' offices, hospitals, or outpatient clinics.[24]

Professional Degree Required to Practice

- Master's degree as the minimum required with clinical doctorates offered

General Requirements for Graduate Admission
(Requirements vary by program)

- Bachelor's degree
- Cumulative GPA of 3.00 or higher
- Completion of specific pre-requisites as dictated by individual programs. These may include:
  - Standardized test scores such as the Physician Assistant College Admissions Test (PA-CAT) or Graduate Record Exam (GRE) or Medical College Admission Test (MCAT)
  - Professional observation
  - Relevant professional experience such as direct patient care

Preparation to Practice

- Pass the Physician Assistant National Certifying Examination (PANCE) to become professionally credentialed
- Obtain state-awarded license
- Additional requirements vary by state[24]

Physician Assistants are...

communicative, passionate, empathetic, level-headed, and have strong problem-solving abilities.[25]

Application Checklist

- Create a Centralized Application Service for Physician Assistants (CASPA) account
- Submit all required application materials including:
  - All official transcripts
  - Personal statement and/or resume
  - Professional/academic letters of reference
  - Standardized test scores such as the Physician Assistant College Admissions Test (PA-CAT), Graduate Record Exam (GRE), or Medical College Admission Test (MCAT)
  - Evidence of PA observation
  - Evidence of paid direct-patient care experience
- Ensure technical standards of the profession can be met
- Interview

Most Common Pre-Physician Assistant Requirements

Course	Number of Courses
English/Writing Composition	Two courses
General Biology or Zoology (with lab)	Two courses
Anatomy (with lab)	One course
Physiology (with lab)	One course
General Chemistry (with lab)	Two courses
Organic Chemistry (with lab)	One to two courses
Biochemistry (with lab)	Varies*
Introductory/General Psychology	One course
College Math	One course
Microbiology (with lab)	One course
Medical Terminology	One course
Statistics	One course
Additional Social/Behavioral Sciences	Varies*

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Missouri State University's Physician Assistant Studies Program Requirements

Resources

Professional and Student Organizations

- Missouri Academy of Physician Assistants (MOAPA)
- American Academy of Physician Assistants (AAPA)
- Missouri State University Pre-Physician Assistant Society

Additional Resources

- CASPA Applicant Help Center
- The PA Life

VETERINARY MEDICINE

VETERINARY MEDICINE

Veterinarians are professionals who evaluate, diagnose, and treat animals to maintain their general health. They examine animals to check for diseases and administer vaccinations to prevent them. Veterinarians are trained to carry out surgical procedures and utilize x-ray machines and other medical equipment to examine animals. They guide animal owners to properly care for their pets and maintain their health. They provide prescription medications when necessary. Veterinarians can work in private clinics, hospitals, farms, laboratories, public health departments, and zoos.[26]

Professional Degree Required to Practice

- Doctor of Veterinary Medicine (DVM)
  or
- Veterinariae Medcinae Doctoris (VMD)

General Requirements for Graduate Admission
(Requirements vary by program)

- Bachelor's degree recommended

- Cumulative GPA of 3.00 or above

- Completion of specific pre-requisites as dictated by individual programs. This may include:
  - Professional observation and experience
  - Academic and/or professional letters of reference
  - Standardized exams such as the Graduate Record Exam (GRE) or Medical College Admission Test (MCAT)
  - Admissions interview

Preparation to Practice

- Pass the North American Veterinary Licensing Examination (NAVALE) to become professionally credentialed[26]

- Obtain state-awarded license

- Additional requirements vary by state[26]

Veterinarians are…

compassionate, decisive, precise, and have interpersonal, management, and problem-solving skills.[27]

Application Checklist

- Create a Veterinary Medical College Application Service (VMCAS)* account
- Submit all required application materials including:
  - All official transcripts
  - Personal statement and/or resume
  - Professional/academic letters of reference
  - Graduate Record Exam (GRE) or Medical College Admission Test (MCAT) scores
  - Evidence of clinical observation and/or experience
- Ensure technical standards of the profession can be met

*Texas Medical & Dental School Application Services (TMDSAS) in the state of Texas

Most Common Pre-Veterinary Requirements

Course	Number of Courses
English/Writing Composition	Two courses
Public Speaking	Varies*
College Math/Statistics	Varies*
General Biology or Zoology (with lab)	Two courses
Genetics	One course
Anatomy (with lab)	One course
Physiology (with lab)	One course
Microbiology (with lab)	One course
General Chemistry (with lab)	Two courses
Organic Chemistry (with lab)	One to two courses
Biochemistry (with lab)	One course
General Physics (with lab)	Two courses
Humanities/Social Sciences	Varies*
Advanced Life Science or Animal Science Coursework	Varies*

*Requirements vary by university. Review requirements on programs' dedicated sites.

Transfer equivalencies can be found on the Transfer Equivalency Database.

Resources

Professional and Student Organizations

- Missouri Veterinary Medical Association (MVMA)
- American Veterinary Medical Association (AVMA)
- Missouri State University Pre-Veterinary Club

Additional Resources

- VMCAS Applicant Help Center
- Veterinary Information Network

Glossary

Term	Definition
Audiology	Diagnose and treat patients experiencing issues with their hearing, equilibrium, or associated conditions.[4]
Athletic training	Prevent, diagnose, and treat muscle and bone injuries and illnesses.[2]
Chiropractic	Evaluate and treat patients' neuromusculoskeletal system, which includes nerves, bones, muscles, ligaments, and tendons.[6]
Dentistry	Diagnose and treat problems with patients' teeth, gums, and related parts of the mouth.[9]
Medicine	Diagnose and treat injuries or illnesses and address health maintenance.[11]
Occupational therapy	Evaluate and treat people who have injuries, illnesses, or disabilities to help them with vocational, daily living, and other skills that promote independence.[14]
Optometry	Diagnose, manage, and treat conditions and diseases of the human eye and visual system, including examining eyes and prescribing corrective lenses.[18]
Pharmacy	Dispense prescription medications and provide information to patients about the drugs and their use.[20]
Physical therapy	Help injured or ill people improve movement and manage pain.[22]
Physician assistant	Examine, diagnose, and treat patients under the supervision of a physician.[24]
Veterinary medicine	Care for the health of animals and work to protect public health.[26]

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Appendix A: Shadow/Clinical Hours

GENERAL OBSERVATION/EXPERIENCE FORM

Student Name:

_____

Profession Observed:

☐ Athletic Training   ☐ Occupational Therapy   ☐ Physical Therapy

☐ Chiropractic Medicine   ☐ Optometry   ☐ Physician Assistant

☐ Medicine (DO/MD)   ☐ Pharmacy   ☐ Veterinary Medicine

                                                             Other _____

Name and address of location where activity occurred: _____

_____

_____

Type of Setting: (e.g. school setting, home health, inpatient, outpatient, rehabilitation, etc.):

_____

Type of Experience:

☐ Observation only

☐ Paid experience

Date(s) experience occurred and time spent:

DATE: _____   START TIME: _____   END TIME: _____
DATE: _____   START TIME: _____   END TIME: _____
DATE: _____   START TIME: _____   END TIME: _____
DATE: _____   START TIME: _____   END TIME: _____
DATE: _____   START TIME: _____   END TIME: _____
DATE: _____   START TIME: _____   END TIME: _____

Total hours spent at this location: _____

Summary of activities observed:

Professional's Information:

Name of Professional: _____

License #:_____

Contact Information/Phone number: _____

_____

_____

Signature (Professional)   Date

Appendix B: Reflection Activity

This reflection activity is designed to prepare students to draft a personal statement and can be used to help advisors efficiently prepare students to enter a professional program.

In 4 – 5 sentences, tell your advisor about yourself and how you realized you wanted to be a healthcare provider.

What traits have you seen in others who practice in the healthcare profession you hope to enter?
1.

2.

3.

Imagine yourself 10 years in the future as a healthcare provider, list a few specific tasks you see yourself doing with patients as part of their care.
1.

2.

3.

Many healthcare professions will require an advanced degree and/or certification. What are a few institutions that you might be interested in attending to complete this requirement?
1.

2.

3.

Appendix C: MSU Equivalent Courses

Course Type	Common Equivalent Courses at Missouri State	
	Course Code and Number	Course Title
English Composition I	ENG 105	Writing I with Studio
	ENG 110	Writing I
English Composition II	AGR 320	Writing II- Writing in the Applied Sciences
	ENG 210	Writing II-Writing Across the Disciplines
	ENG 221	Writing II- Writing for the Professions
	ENG 310	Writing II- Writing for Grad and Professional Schools
	ENG 321	Writing II- Beginning Technical Writing
	GLG 358	Writing II- Reporting Geological Information
	HST 210	Writing II- Historical Inquiry
Public Speaking/Communication	COM 115	Fundamentals in Public Speaking
College-level Mathematics	MTH 136	Pre-Calculus I
	MTH 137	Pre-Calculus II
	MTH 138	Pre-Calculus Mathematics
	MTH 261	Analytical Geometry & Calculus I
	MTH 287	Computational Calculus w/Analytical Geometry I
Statistics	MTH 340	Statistical Methods
	MTH 545	Applied Statistics
	AGR 330	Statistical Applications in Agriculture
	PSY 200	Psychological Statistical Methods
	PSY 527	Advanced Psychological Statistical Methods
	SOC 220	Statistics for Social Research
	QBA 237	Basic Business Statistics
	IPE 381	Statistics for Health Professions
	REC 328	Statistical Applications in Recreation
	BIO 550	Statistical Methods for Biologists
Medical terminology	LLT 102	Scientific and Medical Terminology
	ATC 413	Informatics and Terminology in Healthcare
	IPE 413	Informatics and Terminology in Healthcare
U.S. Government	PLS 101	American Democracy and Citizenship
Abnormal Psychology	PSY 304	Abnormal Psychology

	CFD 155	Principles of Human Development
	**May also take the following combination of courses to cover lifespan development:	
Developmental Psychology	PSY 331	Psychology of Childhood
	PSY 441	Psychology of Adolescence
	PSY 350	Psychology of Adulthood and Aging
Introductory/General Sociology	SOC 150	Introduction to Society
Introductory/General Anthropology	ANT 125	Exploring our Human Ancestry
Economics	ECO 155	Principles of Macroeconomics
	ECO 165	Principles of Microeconomics
Ethics	PHI 115	Ethics and Contemporary Issues
Introduction to Religion	REL 100	Introduction to Religion
Introductory Nutrition/Human Nutrition	DTN 240	Introduction to Nutrition
General Chemistry	CHM 160	General Chemistry I
	CHM 161	General Chemistry I Lab
	CHM 170	General Chemistry II
	CHM 171	General Chemistry II Lab
Organic Chemistry	CHM 201	Essentials of Organic Chemistry
	CHM 202	Essentials of Organic Chemistry Lab
	CHM 342	Organic Chemistry I
	CHM 343	Organic Chemistry II
	CHM 345	Microscale Organic Chemistry Lab
	CHM 445	Intermediate Organic Chemistry Lab
Biochemistry	CHM 352	Introduction to Biochemistry
	CHM 353	Introduction to Biochemistry Lab
	CHM 554	Biochemistry I
	CHM 555	Biochemistry Lab I
	BMS 321	Biomolecular Interactions
General Biology	BIO 121	General Biology (with lab)
	BMS 110	Intro to Human Biology
	BMS 111	Intro to Human Biology Lab
Microbiology	BIO 212	Elements of Microbiology
	BIO 213	Elements of Microbiology Lab
	BIO 312	Microbiology
	BIO 313	Microbiology Lab
	BMS 317	Medical Microbiology (with lab)
Genetics (continued on next page)	BMS 231	Human Genetics with Lab
	BMS 230	Human Genetics
	BMS 232	Human Genetics Lab

Genetics	BIO 235	Genetics
	BIO 236	Genetics Lab
Cell biology	BIO 320	Cellular and Molecular Biology
	BMS 521	Molecular Cell Biology
Anatomy	BMS 307	Human Anatomy (with lab)
	BIO 380	Comparative Vertebrate Anatomy (with lab)
	KIN 250	Applied Human Anatomy (with lab)
Physiology	BMS 308	Human Physiology (with lab)
	BMS 442	Physiology of the Human Cell
	BMS 542	Physiology of Organ Systems
	BMS 562	Medical Physiology Lab
	BIO 361	General Physiology (with lab)
	KIN 252	Applied Human Physiology (with lab)
Biomechanics	ATC 444	Applied Orthopedic Review
	KIN 360	Kinesiology
Histology	BMS 585	Histology
Immunology	BIO 511	Immunology (with lab)
Exercise Physiology	BMS 567	Physiology of Exercise Metabolism
	KIN 362	Exercise Physiology
College Physics	PHY 123	Introduction to Physics I (with lab)
	PHY 124	Introduction to Physics II (with lab)
	PHY 203	Foundations of Physics I (with lab)
	PHY 204	Foundations of Physics II (with lab)
Animal Sciences	AGS 101	Animal Science
	AGS 301	Physiology of Farm Animals
	AGS 310	Animal Nutrition
	AGS 311	Feeds/Feeding
	AGS 316	Animal Breeding
Communication Sciences and Disorders	CSD 210	Phonetics
	CSD 312	Normal Language Acquisition
	CSD 315	Language Disorders in Children
	CSD 316	Introduction to Language and Cognitive-Linguistic Disorders in Adults
	CSD 319	Anatomy and Physiology of Speech
	CSD 360	Hearing and Speech Science
	CSD 370	Audiology
	CSD 572	Aural Rehabilitation
	SPE 311	Introduction to American Sign Language (ASL)

**Remember that if any of these courses are taken elsewhere and transferred to MSU, you will need to check the equivalency of the ORIGINAL course with your program of interest.