



Quick Facts: Medicine (M.D. & D.O.)

<p>Is this career right for you?</p>	<ul style="list-style-type: none"> • Do you enjoy science and the study of the human body? • Do you enjoy researching information and solving problems? • Will you be comfortable with making high-stakes decisions when the answer is not clear? • Are you effective in both leadership and teamwork roles? • Do you have the communication and interpersonal skills to advise and educate patients?
<p>Degrees</p>	<p>In the U.S., there are two types of medical degrees for fully-qualified physicians who are licensed to prescribe medication and perform surgery:</p> <ul style="list-style-type: none"> • The M.D. degree refers to <i>allopathic</i> physicians. • The D.O. degree refers to <i>osteopathic</i> physicians. <p>The coursework and training in both types of medical school is nearly identical. Graduates of either type of program are eligible to enter any specialty and will complete their residencies side-by-side.</p> <p>Among the key distinguishing features of osteopathic medical education is its emphasis on caring for the “whole patient,” with a focus on taking comprehensive patient histories and offering patients guidance on topics such as sleep, exercise, nutrition, and stress management. Osteopathic physicians also are trained in a hands-on method of diagnosis and treatment known as <i>osteopathic manipulative medicine</i>, which has similarities to the modalities used by physical therapists. To learn more about the osteopathic approach to medicine, visit AACOM.org and read the “What is Osteopathic Medicine?” page in the “Become an Osteopathic Physician” section.</p>
<p>Dual Degree Options</p>	<p>Several types of dual degrees are available for people who attend medical school, although not all medical schools offer dual degrees. Typically, joint degree programs take one to four years longer to complete than going to medical school alone, but take less time than completing each degree separately:</p> <ul style="list-style-type: none"> • M.D./Ph.D. or D.O./Ph.D.: for people who want to have a very strong research component to their work, in addition to providing patient care (note that M.D.s and D.O.s can become active researchers without also completing a Ph.D.). • M.D./MBA or D.O./MBA: for people who want formal business training, in addition to training in patient care. These people often take on healthcare management roles. • M.D./MPH: for people who want training in Public Health, in addition to direct patient care. These people generally opt for careers in community health planning, to affect healthcare outcomes for an entire population, in addition to clinically treating individuals. • M.D./J.D.: for people who want to go into medical law.
<p>Length of Professional Training</p>	<p>Nearly all medical school programs last four years. After completing your medical degree, you will need to do a mandatory residency that can last three to eight years (for M.D. and D.O.) depending on the specialty you choose.</p>

<p>Pre-Med Clinical Experience</p>	<ul style="list-style-type: none"> • Shadowing is defined as the observation of a health care provider while that person cares for patients. We recommend spending ½ to 1 day <i>each</i> with the following types of clinicians: <ul style="list-style-type: none"> ○ A primary care physician ○ A physician in a medical specialty ○ A physician in a surgical specialty ○ A physician assistant ○ One other clinician in a related field (such as optometry, dentistry, nursing, etc.) • Direct patient interaction is defined as being in a position to offer comfort and moral support to conscious patients in a health care environment. Most successful applicants have spent <i>at least one year volunteering for 4 hours/week</i> (often more) in a direct patient interaction role. Your objectives are to become comfortable around sick and injured patients, to gain greater understanding of the health care system, and to develop your communication skills in a clinical setting. Although most pre-medical students gain their direct patient interaction experience by volunteering in a hospital or other clinical setting, you can also find paid work as a medical assistant, CNA, EMT, or phlebotomist. Most such positions require training in advance; your pre-health advisor can refer you to reputable training programs.
<p>Other Desired Traits and Experiences</p>	<p>Refer to the List of Core Competencies for Pre-Health Students, taking note that medical schools especially emphasize the following:</p> <ul style="list-style-type: none"> • Scientific Inquiry: Your future work as a physician will require you to use strong critical thinking skills on the job and to remain committed to lifelong learning. Getting involved in an independent study project or another form of research is a great way to demonstrate that you enjoy asking new questions and to gain formal practice in critically analyzing your results and presenting your findings. Research is defined as involvement in a scholarly or scientific hypothesis investigation that is supervised by an individual with verifiable research credentials. <ul style="list-style-type: none"> ○ M.D. schools: Although involvement in research is not an absolute requirement, most successful applicants have spent at least one year working/volunteering as a research assistant, in a role that offers true intellectual engagement (i.e., attendance at lab meetings/journal club meetings, completion of a literature review, etc.). ○ D.O. schools: Research experience is not expected, but it is valued. • Service Orientation: Physicians typically have strong altruistic motivations. Most successful applicants have consistently engaged in paid and volunteer positions involving non-clinical service to others since high school. Examples include retail/restaurant jobs, working as a tutor, and volunteering in roles that allows you to directly help others who are in need. Greater consideration is given to long-term efforts that exemplify the applicant’s dedication and depth of commitment to the service chosen. • Cultural Sensitivity: Every physician cares for patients from a wide variety of racial, ethnic, cultural, and socioeconomic backgrounds. Thus, a history of experiences with people of diverse backgrounds is valued. Such experiences may include living abroad for a period of time, involvement with multicultural organizations, or other volunteer or paid positions that have allowed you to understand and appreciate people whose backgrounds and belief systems are quite different from your own. • Effective Teamwork and Leadership: Physicians must serve as both leaders and collaborators, so medical schools seek candidates who work well with others as a team of equals but also assume leadership roles as needed. Thus, a past history of collaborating successfully with others on a team in a professional setting (such as in research, business, etc.) is valued, as is formal leadership training and experience. Examples of formal leadership roles include serving as a teaching assistant, a resident assistant in a dormitory, a wilderness guide, a manager at work, the captain of an athletic team, or an officer in the military.

<p>GPA</p>	<p>Mean GPAs for <i>accepted</i> medical school applicants, nationwide:</p> <table border="1" data-bbox="418 184 906 325"> <thead> <tr> <th></th> <th>Cumulative GPA</th> <th>Science* GPA</th> </tr> </thead> <tbody> <tr> <td>DO</td> <td>3.5</td> <td>3.4</td> </tr> <tr> <td>MD</td> <td>3.8</td> <td>3.7</td> </tr> </tbody> </table> <p>Although it is ideal to apply with mean cumulative and science GPAs at or above the nationwide means for accepted students, you can become a strong candidate with lower GPAs <i>if your recent academic history demonstrates a long-term trend of academic success.</i></p> <p>If your cumulative and/or science GPAs are currently below the means for accepted students at your schools of interest, you can still become a competitive applicant if each of your term GPAs <i>for the four consecutive terms leading up to the time of application</i> are at or above the values listed above. If you have already completed the prerequisites, consider taking completing additional semesters with upper-division science elective courses. Another option is to complete a one-year pre-health master's program (an "academic enhancement post-baccalaureate program") before applying to medical school. The AAMC maintains a search engine of post-baccalaureate programs of this type.</p> <p><i>*Science GPA is defined as your average GPA in all biology, chemistry, physics and math courses. (CU Boulder prefixes of EBIO, IPHY, MCDB, NRSC, CHEM, PHYS, MATH.) Writing courses taken in these departments do not count toward your science GPA.</i></p>		Cumulative GPA	Science* GPA	DO	3.5	3.4	MD	3.8	3.7
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<p>Admissions Test</p>	<p>MCAT: Medical College Admissions Test (scores typically "expire" after 2-3 years) Topics covered:</p> <ul style="list-style-type: none"> • Reading comprehension: the ability to read dense material quickly, for detail • General Chemistry 1 and 2 • Organic Chemistry 1 and 2 • Biochemistry (CHEM 4611 or CHEM 4700) • Intro to Molecular and Cellular Biology (MCDB 1150 or EBIO 1210) • Human Physiology (covered in courses such as EBIO 1220, IPHY 3430, and IPHY 3470 & 3480, but note that the IPHY options will require Anatomy as a prerequisite as of Fall 2018) • Physics 1 and 2 • Statistics • General Psychology (use the AAMC's Khan Academy materials to learn this subject) • Introduction to Sociology (use the AAMC's Khan Academy materials to learn this subject) <p>Mean MCAT scores for <i>accepted</i> medical school applicants, nationwide:</p> <table border="1" data-bbox="418 1365 1058 1543"> <thead> <tr> <th></th> <th>Mean score on each of the four sections</th> <th>Mean total score</th> </tr> </thead> <tbody> <tr> <td>DO</td> <td>126</td> <td>504</td> </tr> <tr> <td>MD</td> <td>127-128</td> <td>511</td> </tr> </tbody> </table>		Mean score on each of the four sections	Mean total score	DO	126	504	MD	127-128	511
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Reference Guides for School Selection	<ul style="list-style-type: none"> • M.D. schools: <i>Medical School Admissions Requirements</i>, available online and in book format (the two formats complement each other; they do not duplicate information) from the AAMC website. • D.O. schools: <i>Osteopathic Medical College Information Book</i>, available as a free download or in book format from the AACOM website. 										
Names of Common Application Services	<ul style="list-style-type: none"> • M.D. schools: AMCAS (American Medical College Application Service). Opens in early May each year (for the <i>following</i> year's entering class). You can start filling it out in May but cannot submit it until June. • D.O. schools: AACOMAS (American Association of Colleges of Osteopathic Medicine Application Service). Opens in early May each year (for the <i>following</i> year's entering class) and can be submitted immediately. • M.D. and D.O. schools in Texas: TMDSAS (Texas Medical & Dental Schools Application Service). Opens in early May each year (for the <i>following</i> year's entering class) and can be submitted immediately. 										
Recommended Application Timing	<p>Medical schools conduct their admissions processes on a rolling basis, which means that <i>early applicants have a substantially greater chance of acceptance than those who apply even one month later in the application season</i>. You will be considered an early applicant if you submit your common application in the first month of the application season and follow the timeline below.</p> <p>Strongly recommended medical school application timeline:</p> <table border="1" data-bbox="407 795 1498 1388"> <tr> <td data-bbox="407 795 678 898"> Take MCAT </td> <td data-bbox="678 795 1498 898"> <i>May be taken after submitting common application, if necessary</i> <ul style="list-style-type: none"> • TMDSAS: By mid-June of application year • AMCAS and AACOMAS: By mid-July of application year </td> </tr> <tr> <td data-bbox="407 934 678 1037"> Start Common App, Submit Transcripts </td> <td data-bbox="678 934 1498 1037"> <ul style="list-style-type: none"> • All application services: First week of May </td> </tr> <tr> <td data-bbox="407 1037 678 1140"> Submit Common Application </td> <td data-bbox="678 1037 1498 1140"> <ul style="list-style-type: none"> • TMDSAS: By end of May • AMCAS and AACOMAS: By mid-June* </td> </tr> <tr> <td data-bbox="407 1140 678 1289"> Submit Supplemental Applications </td> <td data-bbox="678 1140 1498 1289"> <p>Within two weeks of being prompted to complete each one.</p> <ul style="list-style-type: none"> • TMDSAS: Most will arrive in June • AMCAS and AACOMAS: Most will arrive in July </td> </tr> <tr> <td data-bbox="407 1289 678 1388"> Letters of Recommendation submitted </td> <td data-bbox="678 1289 1498 1388"> <ul style="list-style-type: none"> • TMDSAS: All submitted on your behalf by mid-July • AMCAS and AACOMAS: All submitted on your behalf by mid-August </td> </tr> </table>	Take MCAT	<i>May be taken after submitting common application, if necessary</i> <ul style="list-style-type: none"> • TMDSAS: By mid-June of application year • AMCAS and AACOMAS: By mid-July of application year 	Start Common App, Submit Transcripts	<ul style="list-style-type: none"> • All application services: First week of May 	Submit Common Application	<ul style="list-style-type: none"> • TMDSAS: By end of May • AMCAS and AACOMAS: By mid-June* 	Submit Supplemental Applications	<p>Within two weeks of being prompted to complete each one.</p> <ul style="list-style-type: none"> • TMDSAS: Most will arrive in June • AMCAS and AACOMAS: Most will arrive in July 	Letters of Recommendation submitted	<ul style="list-style-type: none"> • TMDSAS: All submitted on your behalf by mid-July • AMCAS and AACOMAS: All submitted on your behalf by mid-August
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Number of Schools to Which to Apply	<p>We recommend applying to a total of 10 to 15 schools. Even if you are applying to both M.D. and D.O. schools (which is true for most of our advisees), we strongly recommend that you cap your <i>total</i> number of schools at 15. You simply won't have enough time in the summer to complete the additional essays in your supplementary applications in a careful, thoughtful, and timely manner if you try to apply to more than 15 schools.</p> <p><i>A note about public vs. private medical schools:</i></p> <ul style="list-style-type: none"> • You will have your best chance of admission at the public medical school(s) in your state of residency and at private medical schools. • At private schools, all applicants are in the same evaluation pool. In contrast, most public medical schools give strong preference to applicants who are residents of their state. This preference works in your favor at your in-state school(s) but against you at all other public schools, where all out-of-state applicants compete for the small number of seats allocated for out-of-staters. • If you a resident of Alaska, Idaho, Montana, or Wyoming (states that have no medical school of their own), you can participate in the WWAMI Medical Education Program. • If you are a resident of Delaware (which also has no medical school of its own), you may participate in the DIMER (Delaware Institute of Medical Education and Research) program. 										

<p>Application Fee Assistance</p>	<p>The AAMC offers a Fee Assistance Program that opens in mid-January each year. To be eligible, you and your immediate family members (including your parents) must collectively earn less than three times the poverty level for your family size. Dependent status doesn't matter. Awards are limited, so we recommend applying early if you think you may qualify. (Also, do not pay any of the fees listed below while you are awaiting your fee assistance decision, as the AAMC will not issue refunds.)</p> <p>Fee assistance includes:</p> <ul style="list-style-type: none"> • Reduced MCAT registration fee • Complimentary set of MCAT preparation books and practice exams • Complimentary access to the Medical School Admission Requirements website • Waiver of the AMCAS application fee, with up to 16 medical school designations • Up to \$800 toward an updated psycho-educational or medical evaluation if you are applying for MCAT accommodations and an updated evaluation is required. • If you qualify for the AAMC's Fee Assistance Program, some medical schools will waive their secondary application fee.
<p>Letters of Recommendation</p>	<p>Medical schools typically request a total of 3 to 5 letters of recommendation. Check each school's website to determine their specific LOR assortment requirement. Please provide each of your evaluators with a copy of our <i>Pre-Health Guidelines to Recommenders</i> form.</p> <p>We recommend the following assortment of letters:</p> <ol style="list-style-type: none"> 1. Letter from a CU Boulder science* faculty member, ideally one who has taught you in a lecture or seminar course and thus can comment upon your intellectual engagement as a student. 2. Letter from another faculty member. This person can be from CU Boulder or another school you have attended, and can be from any department. Again, it's ideal if this person has taught you in a lecture or seminar course and can therefore attest to your intellectual engagement as a student. 3. Letter from a supervisor from a work or volunteer experience who can attest to your intrapersonal and interpersonal skills. If you have been strongly involved in research but did not take a course from your research P.I., we recommend asking your P.I. to write this letter. 4. [Optional] One more letter from a writer from any of the above categories. <i>If you are applying to D.O. schools, you will need a letter written by a D.O. whom you've shadowed who can attest to your understanding of and interest in osteopathic medicine.</i> <p>*"Science," for the purpose of applying to medical school, is defined as Biology, Chemistry, Physics, and Math (CU Boulder prefixes: MCDB, EBIO, IPHY, NRSC, CHEM, PHYS, MATH)</p> <p>A note about Pre-Health Committee Letters of Evaluation: CU Boulder does not offer Committee Letters, except to students who complete our Post-Baccalaureate Health Professions program <i>and</i> complete all of the steps (and meet all deadlines) in our Committee Letter Process. Plan ahead: This process begins in the fall semester of the academic year before your application cycle and takes ~8 months to complete. Please visit www.colorado.edu/ceprehealth > Letters of Recommendation for details.</p>