

Advice for: Premedical Students, Case Western Reserve University

Premedical Advisors:

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The campus premedical organizations are **AMSA**, an undergraduate chapter of the American Medical Student Association and **DHW**, the Daniel Hale Williams Society, concerned with minority affairs.

Check out the Pre-Med, Pre-Dental, & Health Professions Web Site!

Look for it under the "My Organizations" section of Blackboard once you log in.

Contact us with your email address, if you are not yet enrolled.

OUR FIRST RECOMMENDATION IS TO EXPLORE

Before you even start your college premedical studies, or while you are in the middle, or even when it is about time to apply to medical school, we encourage you to explore what else is out there besides medical school! Sometimes students forced to consider plan B for one reason or another, discover that plan B should have been plan A all along. A few "alternatives" are listed in another handout - once you explore some of these you may find a new passion, a new "plan A". A good source for information on just about any career you can think of is the US Bureau of Labor Statistics: <http://stats.bls.gov/oco/oco1002.htm>. Just to get you thinking...a brief quiz... (Answers are on page 4.)

1. In what career might you fight bioterrorism, keep the food supply safe, or save an endangered species (and it's not public health)?
2. As health care needs and services expand, while cost containment becomes more and more of an issue, what two primary health care careers are projected to grow *very* rapidly?
3. Who said, "Health care is vital to all of us some of the time, but public health is vital to all of us all the time?"
4. Who advises your doctor about drugs and drug interactions and educates patients about both prescriptions and over the counter medications (and is in *great* demand)?
5. Who can do surgery, is in demand by diabetics and athletes, probably has a shorter residency than an M.D., does not need astronomical MCAT scores, and may have as high a salary as a primary care M.D.?
6. Who might help someone read better, drive better, learn better; and might be the first to discover hypertension or diabetes in a patient?

OK, so you have explored other possibilities and you are sure you REALLY want to be an M.D.
- WHAT DO YOU NEED TO DO?

I. WHAT COURSES DO YOU NEED?

A. General requirements:

Admission requirements are set by the medical schools, so they do vary from school to school. Thus, you should familiarize yourself with the requirements of the medical schools that you are considering - including medical schools in your state of residence, or schools that give preference to residents of your state.

In general, medical schools require an understanding of the basic principles of science - commonly requiring **one year of biology**, **two years of chemistry** (including organic chemistry), and **one year of physics** - all of these with a laboratory experience. Some schools require **one year of mathematics**. **At least ten schools require biochemistry**. Communication skills are also valued, and **one year of English** is often required. The table below gives you an idea of the frequency with which certain subjects are required:

Subjects Required by 10 or More U.S. Medical Schools (of 119 schools)

<u>Subject required</u>	<u># of schools</u>
Physics	117
Biology (or choice of biology or zoology)	117
Inorganic chemistry	115
Organic chemistry	116
English	77
Calculus	23
College mathematics	17
Social Sciences	13
Behavioral Sciences	13
Humanities	12
Biochemistry	10

AP credit is accepted by the majority of medical schools, sometimes with the stipulation that it must be followed by some work in college in the same field in which the AP credit was earned. Some schools will accept only one semester's worth of AP credit in some subjects, but two semester's worth in other subjects.

Information on the **requirements, tuition, application procedures and curriculum** of individual medical schools, can be found in the book, Medical School Admission Requirements, published by the Association of American Medical Colleges. A copy of the most recent edition is available in Office of Undergraduate Studies, Sears 357. You may order your own copy from the AAMC web site: http://pnet400.aamc.org/AAMC_Store/catalog.cfm or by calling (202) 828-0416. The cost is: \$17.95 plus postage.

Another very comprehensive, informative book is Kenneth V. Iserson's **Get Into Medical School**. It covers topics as varied as the difference between the M.D. and D.O. degrees, minority applicants, non-traditional applicants, MCATs and application procedures, evaluating schools,

foreign medical schools, military and service scholarships, etc. The price is \$36.95, plus postage. It can be ordered from: Galen Press, PO Box 64400-J7, Tucson, AZ 85728-4400 (1-800-442-5369 or <http://galenpress.com>).

B. Specific courses at Case that can fulfill the general requirements

There are a number of ways that premedical requirements can be met at Case, depending on your major, your degree (BA vs. BS) and school (Arts and Sciences vs. Engineering). The courses that premedical students generally take are listed below. You are encouraged to discuss alternative plans with us.

Chemistry: To meet the requirement for two years of chemistry plus lab, most Case students take **CHEM 105, 106 and 113** during the first year. Engineering students will take CHEM 111, 113 and ENGR 145. (To be better prepared for Organic Chemistry, for medical school, and for the Medical College Admissions Test, premedical engineering students may want to take or audit CHEM 106 as well.) Most students then take **CHEM 223, 224** (or 323, 324) and **233, 234** during the second year year. At least ten schools now require biochemistry - e.g. **BIOC 307 or CHEM 328** - and at least 20 others recommend it. Some schools will allow you to substitute biochemistry for the second semester of organic chemistry. (Stanford recommends Physical Chemistry.)

Physics: To meet the requirement for a year of physics with lab, most Case premedical students take **PHYS 115, 116** during the junior year. Students who are pursuing an engineering degree or a BS degree in some of the science departments, will take PHYS 121, 122 during the first year and/or second year.

Biology: To meet (actually exceed) the requirement for a year of biology with lab, Case students are advised to take all three majors' "core" courses **BIOL 214, 215 and 216**. These courses all include laboratory. Students in **biomedical engineering** take EBME 201-202 instead of BIOL 216, but should still take BIOL 214 and 215 to be prepared for the MCAT.

Mathematics: Many medical schools require one year of mathematics, and at Case you need calculus in order to take physics. The majority of Case premedical students take **MATH 125, 126** during the first year (or possibly the second year). Those students who are pursuing engineering degrees, or who are obtaining the BS degree in certain science departments, will take MATH 121, 122 in the first year.

English: Since many medical schools require one year of English, you should take at least **one semester (3 hrs) of ENGL** (or LITR or CMPL) beyond **ENGL 150** (or beyond the first seminar). At least one school now requires 8 hrs of English! As a medical student and as a physician, you will spend a considerable amount of time "presenting" and "writing up" cases, so courses which develop and refine your communication skills are especially valuable. Students following the **SAGES full implementation (and Pilot) curriculum** will meet, and exceed, the one year of English requirement with the First Seminar and University Seminar completion.

Answers to Quiz

1. Veterinarian
2. Physician assistant and nurse practitioner
3. C. Everett Koop
4. Pharmacist
5. Podiatrist
6. Optometrist

**POSSIBLE SCHEDULE OF PREMEDICAL COURSES FOR STUDENTS IN
ARTS AND SCIENCES MAJORS (NON-SAGES)**

Year	Fall	Either semester	Spring
First year	MATH 125 CHEM 105 CHEM 113	ENGL 150	MATH 126 CHEM 106 BIOL 214
Second year	CHEM 223 CHEM 233 BIOL 215		CHEM 224 CHEM 234 BIOL 216
Junior	PHYS 115	ENGL Elective	PHYS 116

**POSSIBLE SCHEDULE OF PREMEDICAL COURSES FOR STUDENTS IN ENGINEERING
AND SOME OTHER B.S. PROGRAMS (NON-SAGES)**

Year	Fall	Either semester	Spring
First year	MATH 121 CHEM 111 CHEM 113	ENGL 150	MATH 122 ENGR 145 PHYS 121 [CHEM 106 take or audit optional]
Second year	CHEM 223 CHEM 233 PHYS 122		CHEM 224 CHEM 234 BIOL 214
Junior	BIOL 215	ENGL Elective	BIOL 216

**POSSIBLE SCHEDULE OF PREMEDICAL COURSES FOR STUDENTS IN
ARTS AND SCIENCES MAJORS (SAGES Pilot and Full Implementation)**

Year	Fall	Either semester	Spring
First year	MATH 125 CHEM 105 FSCC/FSNA/FSSO FSSY 100 LEVEL	CHEM 113	MATH 126 CHEM 106 BIOL 214 USNA/USSO USSY 200 LEVEL
Second year	CHEM 223 CHEM 233 BIOL 215 USNA/USSO USSY 200 LEVEL		CHEM 224 CHEM 234 BIOL 216 USNA/USSO USSY 200 LEVEL
Junior	PHYS 115	Departmental Seminar	PHYS 116

**POSSIBLE SCHEDULE OF PREMEDICAL COURSES FOR STUDENTS IN ENGINEERING
AND SOME OTHER B.S. PROGRAMS (SAGES Pilot and Full Implementation)**

Year	Fall	Either semester	Spring
First year	MATH 121 CHEM 111 FSCC/FSNA/FSSO FSSY 100 LEVEL	CHEM 113	MATH 122 ENGR 145 PHYS 121 [CHEM 106 take or audit optional] USNA/USSO USSY 200 LEVEL
Second year	CHEM 223 CHEM 233 PHYS 122 USNA/USSO USSY 200 LEVEL		CHEM 224 CHEM 234 BIOL 214 USNA/USSO USSY 200 LEVEL
Junior	BIOL 215	Departmental Seminar	BIOL 216

C. Other courses that may be of interest to premedical students

A broad education is of great value to premedical students, **and no one major is preferred by medical schools.** Many Case premedical students major in Biology, Chemistry, Biochemistry, Anthropology, Nutrition or Psychology, but successful premedical students have majored in just

about every field including Asian Studies, Management, Music, History, Spanish, Economics, and English. Whatever your major, some of these courses might be of special interest:

ANTH 102: Being Human:
Introduction to Social and Cultural
Anthropology
ANTH 215: Introduction to Medical
Anthropology
ANTH 311: Mental Health as
Global Public Health
ANTH 317: Asian medical Systems
ANTH 318: Death and Dying
ANTH 326: Power, Illness and
Inequality
ANTH 337: Comparative Medical
Systems
ANTH 359: Introduction to
International Health
ANTH 397: Epidemiology and
Evolution of Human Disease
ANTH 361: Urban Health
BIOL 225: Evolution
COSI 100: Introduction to Human
Communication
HIST 265: History of the
Professions
HIST 395: History of Medicine

NTRN 328: Child Development and
Health
PHIL 102: Ethics: An Introductory
Approach
PHIL/RLGN/BETH 271:
Bioethics: Dilemmas
PSCL 101: Introduction to
Psychology
PSCL 230: Child Psychology
PSCL 317: Health Psychology
PSCL 321: Abnormal Psychology
PSCL 334C: Hospitalized Child
PSCL 352: Physiological
Psychology
PHED 105: CPR/First Aid
PHED 332: Care & Prevention Of
Athletic Injury
PHED 339: Advanced Athletic
Training
ECON 378: Health Care Economics
SOCI 112B: Introduction to
Sociology: Human Interaction

NTRN 201: Nutrition

Notes for students in the Pre-Professional Scholars Program (PPSP) in Medicine

1. Students in the Pre-Professional Scholars Program in Medicine are expected to complete the requirements of the Case School of Medicine - generally by including the courses listed on pp. 4-5. Any major is fine.
2. Admission to the Case School of Medicine is assured for students applying at the end of three years with a total AMCAS GPA *and* AMCAS BCPM GPA (Biology, Chemistry, Physics and Math) of 3.6 or higher, and an MCAT total score of 32 or higher *if the MCAT is taken*. The MCAT is not required for the PPSP but *is* required if you are to be considered for some large scholarships at the Case School of Medicine.
3. Students in the PPSP are expected to show continuing outstanding personal development, including, but not limited to, maintaining academic integrity.
4. "AMCAS GPA" refers to the average as it is calculated by the American Medical College Application Service. If a course is repeated, both grades count in the average (even though only the new grade counts on the Case transcript). Grades from courses taken at other US colleges and universities are also included in the AMCAS GPA even though they are not included in your Case average.

5. Students wishing to apply early for the *Senior Year in Professional Studies* option may do so, but early admission is not assured by the PPSP. Students should have earned at least 117 credit hours before applying.
6. Students wishing to apply for joint degrees (MD/PhD, MD/JD, MD/MPH, MD/MBA) may do so, but admission into joint programs is not assured by the PPSP.
7. Admission is assured only into the traditional Case School of Medicine (the University Program); not into the new Cleveland Clinic Lerner College of Medicine of Case (the College Program).

II. BEYOND COURSES - WHAT ELSE HELPS PREPARE YOU FOR MEDICAL SCHOOL?

A. First and foremost, maintain academic integrity! Any record of an Academic Integrity violation will *seriously* weaken your application.

B. Medical volunteer work, shadowing, reaching out to the community

By volunteering in a hospital, clinic, nursing home, camp for children with illnesses, etc - you can **confirm your motivation** to enter medicine, **develop greater self-confidence** in dealing with people about sensitive issues, **and put to good use your innate humanistic concern for others**. Moreover, some experience in a medical setting, such as observing a doctor at work in an office and/or operating room, helps demonstrate to medical schools that you know what a career in medicine entails and that you are dedicated to this career.

We are listing a few local possibilities, with the Free Clinic of Greater Cleveland as an especially good choice for those who want some training and hands on medical responsibility. You could also volunteer in the summer at your local hospital or a doctor's office in your home town.

The Free Clinic of Greater Cleveland - Many positions, often with training and a high level of responsibility. 12201 Euclid Ave, 721-4010, Web: www.thefreeclinic.org

University Hospitals (Emergency room, Rainbow, etc.), Kathy Head, 844-1504

The Cleveland Clinic - Wide variety of possibilities including a popular position in pediatric anesthesiology. 445-6986

Cleveland Clinic Children's Hospital for Rehabilitation, 2801 Martin Luther King Jr. Dr., 721-5400

Ronald McDonald House - For families of children being treated locally, 10415 Euclid Ave, 229-5758

Hospice of the Western Reserve - Care for the terminally ill. Jane Brodrik, 383-2222

Hope Lodge - For cancer patients, 11432 Mayfield, Donna Brunello, 449-4913

Judson Park, 2181 Ambleside, and **Judson Manor**, 1890 E. 107th, nursing home, assisted living, independent living 721-1234

Kethley House at Benjamin Rose Place, 11900 Fairhill, nursing home, 795-5450

YWCA - In need of people for mobile mammography, health education. 216-881-6878 ext 242

Boys and Girls Clubs of Cleveland (216) 883-2106

Special paid positions are available through **AmeriCorps** a National Service Program that includes a health care track. Call 368-5231 or
Contact Betsy Banks: ewb@case.edu or Julie Hewitt: jah18@case.edu

A great campus volunteer organization is **U-Shape**, a group in which students go out into the community to encourage healthy lifestyles in high school students.

C. What about research?

Research is a valuable experience for applying to medical school. We are seeing a trend where more schools strongly prefer that it's applicants have some research experience. (**Case SOM strongly prefers research experience.**) Becoming involved in research allows you to better understand the research process and evaluate research papers you will read as a doctor. Many of you will want to do research while you are in medical school or after you become an M.D., so this is a good time to get started. There are many opportunities for exploring research while you are an undergraduate at Case.

1. You can do **research for academic credit**, generally during the regular academic year. You need to fill out some forms in the department in which you are getting the academic credit, and then register for research as a course (for example Biology 388 or 390; Biochemistry 391). The forms require a brief description of the project, a signature from your research sponsor, and a signature from someone in the department where you will get the credit. To find such a position, feel free to call or e-mail professors and ask them about their research and whether they have room for an undergraduate at this time. To get started check the web (Biology Department or medical school department home pages), talk to upperclassmen, your professors *etc.* Students interested in research should also contact Dr. Sheila Pedigo, Director of SOURCE (Support for Undergraduate Research and Creative Endeavors) at 368-8508 or sdp5.

2. You can participate in a **summer research program for a stipend**. **APPLY EARLY** - some programs have deadlines as early as January and others are February or March. **The Biology Department SPUR program** offers positions in a wide variety of departments on campus and at the medical school. **The Medical Scholars Program in the Department of Anthropology** has sent students to such exotic locales as Uganda and Western Samoa. **Whittaker Scholars do research in the Department of Biomedical Engineering**. If you can find a position in an appropriate laboratory, you can apply for summer research support from **the Heart Association, the Cancer Society, or the Diabetes Association**. Off campus, the **Chester Summer Scholars Program** offers premedical students the chance to do research and observe doctors at MetroHealth Medical Center in Cleveland. Info and application: <http://www.metrohealth.org/general/foundtn/cssprog.asp>. There are countless other programs all over the country. See these web sites to get started:

Summer research positions funded by the Howard Hughes Medical Institute
<http://hhmint3.hhmi.org/cgi-bin/webic.exe?template=hhmi/dir1sub2.wi>

NSF Research Experience for Undergraduates Program
<http://www.nsf.gov/home/crssprgm/reu/reubio.htm>

Undergraduate Summer Research Opportunities in Chemistry
http://rainier.chem.plu.edu/sumr_res.html

If you would like to be home for the summer, just write your local universities and ask about their summer research opportunities. A note: many programs do not take first year students; some prefer *not* to take premedical students, while some are designed specifically *for* premedical students; some are open only to minority students - so read the descriptions and qualifications carefully. Almost all of these programs are very competitive. As previously stated, we encourage you to apply early.

III. THE MCAT

Almost all U.S. medical schools require the Medical College Admission Test - the MCAT. Currently, the test is given on paper twice each year - in April and August. Ideally, you should take the MCAT by April of the year before you plan to enter medical school (usually your junior year). This will allow you to complete your application to medical schools early, which does offer some advantage since many medical schools have rolling admissions. You can, however, meet application deadlines if you take the MCAT in August. In that case, you should go ahead with your AMCAS application in the summer and proceed through secondary applications. Then the MCAT scores will be the final piece of your application.

Web site for registering for the MCAT: www.aamc.org/mcat

The **examination fee is \$190**. For this fee, scores will be sent to you, to your premedical advisor, to AMCAS, and up to 6 non-AMCAS schools, provided that you release the scores at the time you take the test. There are further fees for **late registration** (\$50), for arrangements to take the test on **Sunday rather than the usual Saturday** (\$10), or for taking the test in a **foreign country**: Australia, England, France, Germany, Israel, Japan, Lebanon, Saudi Arabia or Singapore (\$60). In certain financial situations, you can apply for **fee assistance**, for both MCAT and AMCAS at the same time - the forms are available from the AAMC web site (www.aamc.org), and they must be submitted electronically.

It is very helpful to practice the MCAT before you take it. There is one free practice test on-line (www.e-mcat.com), plus there are several others you can purchase from the MCAT web site.

The test consists of **four sections**:

The **Verbal Reasoning** section (85 min.) consists of a series of prose passages followed by multiple choice questions. The questions are designed to assess reading comprehension, ability to evaluate arguments and ability to apply information to a new context.

The **Physical Sciences** section (100 min.) consists of a series of problems, followed by multiple choice questions. The questions will test your understanding of the basic concepts of physics and of physically related chemistry, and will also test your ability to solve problems and analyze data.

The **Biological Sciences** section (100 min.) is similar to the physical sciences section. It will test your knowledge of basic concepts and problem solving in biology (75%) and in biologically related chemistry, including organic chemistry (25%). All of the sections described so far are graded with a number from 1 (lowest) to 15 (highest).

The **Writing Sample** section (60 min.) will require you to write two essays. You will be expected to develop a central idea, present ideas logically and clearly, and to use accepted grammar and punctuation. This section is graded with a letter from J (lowest) to T (highest).

IV. APPLICATION TO MEDICAL SCHOOL.

A. Where should you apply?

In general, you should apply to all (or most) **medical schools in your state of residence** (or which give preference to residents of your state) since most public and some private medical schools give preference to state residents. For similar reasons, African American students may want to consider applying to Howard University College of Medicine, Meharry College School of Medicine, or the School of Medicine at Morehouse College. Members of the Seventh Day Adventist Church may want to consider Loma Linda University.

You should choose additional schools based on *your chances of being accepted*, the curriculum, location, cost etc. To evaluate your chances of being accepted, you can consult the Medical School Admission Requirements book and the Iserson book mentioned. These include average scores for successful applicants to each school, and also the number of applicants and the numbers of in-state and out-of-state residents accepted. Studies carried out by the Association of American Medical Colleges have revealed that submitting more than a dozen applications rarely increases your chance of gaining admission. (We suggest between 6 and 10 schools.)

B. The AMCAS application service

The American Medical College Application Service (AMCAS) allows you to apply to any of 114 U.S. medical schools with one application; and the only way to apply to these AMCAS schools is via AMCAS. To apply to non-AMCAS schools you must contact the school to get an application and submit it directly to the school. The non-AMCAS schools are: Columbia, New York Univ., Univ. of Rochester, Univ. of North Dakota, Brown and all public medical schools in Texas. The Texas system has its own application service: Texas Medical and Dental Schools Application Service, 702 Colorado, Suite 6.400, Austin, TX 78701 E-mail: TMDSAS@utsystem.edu.

The **AMCAS fee** is \$160 for the first designated school and \$30 for each additional school.

Web site for AMCAS application: <http://www.aamc.org/students/amcas/application.htm>

You will also need to arrange to have copies of **transcripts** sent to AMCAS from all colleges where you have been enrolled, including any colleges where you took courses when you were a high school student or where you took summer courses (even if you failed the courses). Print out a transcript request matching form from the AMCAS application and give that to the registrar.

The AMCAS application becomes available on the web about May 1 (though worksheets are available all the time); and **AMCAS begins to accept applications in early June** of the year before entry. Final deadlines for receipt of all materials by AMCAS vary with the school. It may be as early as October 15; but is commonly November 1, November 15, December 1, or

December 15. Consult Medical School Admission Requirements or the AMCAS instructions to determine the deadlines for the schools you are considering. **Early is best!**

Schools which do not participate in AMCAS are: Brown, U of Missouri-Kansas City, , U of North Dakota and all Texas schools except for Baylor. If you are interested in applying to a non-AMCAS school you must contact the school directly to request an application. Five of the Texas medical schools are part of the University of Texas and have their own centralized application. It is available at <http://www.utsystem.edu/tmdsas>.

(There is a similar application service for **colleges of osteopathic medicine** - AACOMAS. You can learn more about osteopathic medicine as well as gain access to their application **AACOMAS On-Line** by going to the web site: <http://www.aacom.org>.)

C. Secondary applications

After you have sent your electronic application to AMCAS, and AMCAS has verified the grades, etc., AMCAS will send it out to the medical schools you have chosen. Then you will hear from the medical schools directly. If your grades, scores etc. fall below some minimum, they may simply turn you down at that point. If you pass their initial screening, you will be asked to submit further items - usually **a secondary application, recommendations, and an application fee**.

D. Letters of recommendation

You should start a **file of letters of recommendation at The Career Center**, 206 Sears Building, in the spring of your junior year. If possible, you should ask people who know you as more than a name on a class list to write letters for you. These should generally include two science teachers, one non-science teacher, and the premedical advisor. **We do not have a premedical committee**, but this assortment (or some subset) is an acceptable substitute. You may also ask for letters from a research sponsor, volunteer supervisor or employer. (Some med schools will have a limit on the number of letters so you may not use all the letters every time.)

Unless you are abroad your junior year - see us to request a recommendation before mid-June. WE DO NOT HAVE PREMED APPOINTMENTS IN JULY. This time is used to complete letters of recommendation. For greater efficiency, fill out a copy of our premed recommendation form and bring it with you – it is available in Sears 357.

If you are requesting a recommendation from one of your professors, it is also a good idea to make an appointment or stop in during the professor's office hours. You might want to take a brief resume with you and jot down on it the course you took from the professor and when. Then you can discuss further some of the items on your resume in person, share some of your background and reasons for wanting a medical career, and just generally let the person get to know what a mature, caring and interesting person you are!

Ask each person writing the recommendation to send it to the Career Center (CC) along with the CC yellow form. The recommenders can write the recommendation on the form, but we think it is nicer to use department letterhead and attach the form. Check in a few weeks to make sure the CC has received the letter.

E. Then the INTERVIEW!

After your application at a particular school is complete (including secondary application, recommendations, etc.), if the admissions people are seriously interested in you, they will invite you for an interview. Usually you must get to the school (and pay your own way), though occasionally schools will do regional interviews so you can be interviewed closer to Case. The format for the interview, and the identity and number of people who will interview you may vary. Anyone you meet may have some input to the admissions decision, so keep that in mind. Feedback from students who have had interviews at various medical schools (plus a lot of other useful premedical information) is available at:

<http://www.studentdoctor.net/index.asp>

Pointers for a successful interview:

1. **Try a mock interview with your friends, and ask them to listen to see if you are too dependent on words such as: “like,” “you know,” or “er..whatever.”** If so, practice using more professional speech – your way of speaking may be really important to medical school interviewers.
2. Give some thought as to **why you want a career in medicine** and how this desire evolved. Be sure you can say more than "I want to help people" or "I like science". The interviewer might ask you not only why you want to be a doctor, but also what you know about being a doctor and what you know about being a patient.
3. Keep up to date on a few **current medical issues** and events. You do not need to pore over medical journals, but do read Time or Newsweek and the newspaper to see what recent discoveries have been made, what ethical or social issues are being debated etc. They might ask you about stem cell research, national health care, euthanasia, etc.
4. **Learn about the school** and the community in advance and formulate some questions. You will impress the interviewer with your interest in the school, and you will learn what you want to know. Arrange to go on a tour and talk to current students as well.
5. **Don't be afraid to express, explain or defend your own views or values** (calmly). An interviewer might purposely take a viewpoint opposite from yours to see how well you can defend a position or how you deal with conflict.

F. What about applying early decision?

If you have a very strong preference for one particular medical school, and you have a *very strong* chance of being accepted there, you might want to apply to that school "early decision." When applying early decision, you are allowed to apply to only one school, and you must get your application to AMCAS by August 1. You then supply any additional materials to the medical school by September 1, an interview will be scheduled in a timely fashion, and the school will let you know of their decision by October 1. The advantages are that you can relax and enjoy your senior year, and you can save money on application fees and travel for interviews. Keep in mind that if you have sent an early decision application to a particular

school, and the school accepts you, you are committed to attend that school. If the school turns you down, then and only then are you allowed to send out additional applications. You will generally also be included in the normal admissions procedure at the school where you applied early decision. Note that some schools are dropping early decision.

V. NECESSITY OF HAVING A PLAN B, IN CASE PLAN A DOES NOT WORK OUT.

The number of applicants has been going up in recent years, and thus acceptance rates have been going down. However, Case students have continued to gain acceptance into medical school at an acceptance rate significantly greater than the national average. You should have a strong academic record and competitive MCAT scores to increase the likelihood of being accepted. What is strong enough or decent enough?

A. Grade point average (GPA)

Medical schools look at **Total GPA** (all courses), and **BCPM GPA** (all biology, chemistry, physics and mathematics courses). They see the averages for each year separately as well as the cumulative values. Thus, it will be evident if academic achievement improves, or if there is only one weak semester among many strong ones. Though there is considerable variation from school to school, the mean GPA's for **students accepted nationally and for those accepted from Case to enter medical school in the fall of 2004** were as follows:

	<u>Nationally</u>	<u>From Case</u>
Total GPA:	3.70	3.75
BCPM GPA:	3.56	3.60

Use of grading options to improve your GPA: Judicious use of **withdrawal (w)** from a course in which you are doing poorly, **repeat of a course (RPT)** in which you received a poor grade, or taking a course for a **pass/no pass grade (P/NP)** can all help preserve your GPA at Case. However, if you repeat a course, the original grade and the new grade must both be reported to AMCAS and both will affect your AMCAS GPA's. Furthermore, though **transfer credit** is not used in computing the GPA on your Case transcript, you will be required to submit transcripts from all your undergraduate schools when you apply to medical school, and all grades will contribute to your AMCAS GPA's.

B. MCAT scores

The average scores on the MCAT tests for **students accepted nationally and from Case in 2004** were as follows:

	<u>Nationally</u>	<u>From Case</u>
Verbal reasoning:	9.51	9.76
Physical sciences:	9.76	10.19
Biological sciences:	10.09	10.44
Writing sample:	0	0

FYI: For *osteopathic medical schools*, for the 2006 application cycle, the average total GPA was 3.38 and the BCPM GPA was 3.25. Average MCAT scores were 7.96 verbal, 7.77 physical science, and 8.32 biological science.

In looking over the recent records of **Case students**, most successful applicants had a BCPM GPA of 3.4 or higher and an MCAT total of 28 or higher. High grades can sometimes offset borderline MCAT scores and *vice versa*. Students with these “numbers” (low in either grades or MCATs, but high in the other) were all accepted by some medical school in 2004:

<u>BCPM GPA</u>	<u>Total GPA</u>	<u>MCAT Verbal</u>	<u>Phys Sci</u>	<u>Biol Sci</u>
4.00	4.00	8	10	10
3.75	3.77	8	10	10
3.32	3.69	12	10	12
3.16	3.52	13	11	12

Other factors besides grades and MCAT scores are very important. Even if grades and MCAT scores are both high, there is *no guarantee of acceptance*. We have seen a student with a GPA of 3.82 and MCAT scores of 10, 11, 11, *but virtually no medical experience*, who was not accepted anywhere the first time he applied. On the other hand, the scores and GPA's of accepted under-represented minorities (Black/African American, Mexican American/Chicano, Native American/Eskimo, Mainland Puerto Rican) may vary somewhat from the figures given - please consult with us if you are in one of these groups.

How have our students been doing? Five Year Snapshot

National Statistics

<u>Year of entry</u>	<u>applicants</u>	<u>accepted</u>	<u>% accepted</u>
1999	38,529	17,445	45%
2000	37,136	17,546	47%
2001	34,862	17,455	50%
2002	32,127	16,893	52.5%
2003	33,567	16,800	50%
2004	34,139	16,367	48%

Case Statistics - counting all students with bachelors degrees from Case who applied for a given year, including repeat applicants and others who graduated in previous years:

<u>Year of entry</u>	<u>applicants</u>	<u>accepted</u>	<u>% accepted</u>
1999	139	93	67%
2000	127	82	65%
2001	117	75	64%
2002	113	80	70%
2003	120	88	73%
2004	138	94	68%

Perhaps even more telling is the following:

For Case students with BCPM GPA's of 3.4 or higher

In 2001: 81% were accepted.

In 2002: 88% were accepted.

In 2003: 86% were accepted.

In 2004: 83% were accepted.

Obviously, though many Case students do gain admission to medical school, some will not. Therefore each of you should at least be considering an alternative plan - perhaps another health career, a non-US school, or a way to strengthen your academic credentials. Health related programs available at Case are listed below. We also have a brief summary of a variety of health careers available in a separate handout.

Some of the Health-related Professional Schools and Programs at Case

- Genetic counseling training program, MS in Genetics: gps@pop.cwru.edu
(2 years including one summer)
- Master of Science in Anesthesiology: www.anesthesiaprogram.com
(2 years including summers) (216) 844-8077
- Nursing: <http://fpb.cwru.edu/>, Besides the BSN, the nursing school also offers:
MSN (3 or 4 semesters after the BSN) --> nurse practitioner, midwife, etc.
ND (doctor of nursing - time varies depending on nursing or non-nursing background)
PhD in nursing
- Dentistry (Doctor of Dental Surgery): <http://www.cwru.edu/dental/casewebsite/>
- Medicine (Doctor of Medicine): <http://mediswww.meds.cwru.edu/>
- Dietetics, Applied Nutrition, Public Health Nutrition, Case School of Medicine, Department of Nutrition: <http://www.cwru.edu/med/nutrition/homepage.html>
- Health Systems Management at the Weatherhead School - variety of programs:
<http://weatherhead.cwru.edu/hsmc/>
- Master of Science in Social Administration, Health Concentration or Mental Health Concentration, Mandel School of Applied Social Science:
<http://msass.cwru.edu/academic/ahealth.html>
(about 2 years, 1 year possible with Bachelor's in Social Work)
- Master of Public Health, Case School of Medicine For information, call 216-368-3197 or e-mail shf2@po.cwru.edu
- Master of Arts in Bioethics, Case School of Medicine (also a doctoral program):
<http://www.cwru.edu/med/bioethics/masters.html>
(1 year full time, includes clinical rotations)
- Master of Science in Applied Anatomy. Case School of Medicine, Department of Anatomy. For information, call 216-368-2433 or e-mail lvb@po.cwru.edu
- Master of Science in Exercise Physiology (in conjunction with John Carroll University). For information, call 216-368-5529 or e-mail plb4@po.cwru.edu
- Master of Education (in conjunction with John Carroll University) For information call 216-397-4331 or e-mail crosemary@jcu.edu

Frequently Asked Questions:

Q: Do medical schools prefer certain majors over others?

A: No, medical schools prefer to construct a class that is well diverse in terms of academic majors and backgrounds. Medical schools are most concerned and impressed with strong records of aptitude for the sciences (your BCMP GPA and MCAT score), and a strong commitment to the medical field (conveyed through volunteer experience, clinical experience, research experience and leadership).

Q. Does receiving a bachelor's degree from Case provide any advantage in being accepted by the Case School of Medicine?

A: It does offer the advantage that the majority of Case undergraduates with a competitive academic record will get an interview at the Case SOM. There has been an average of approximately 20-26 Case students who have matriculated at the Case SOM over the past five years.

Q: Are most of the “slots” for Case undergraduates at the Case SOM filled by students in the Pre-Professional Scholars Program in Medicine?

A: No. There is really no set number of “slots” for Case undergrads. There has been an average of approximately 6-9 Case students who have matriculated at the Case SOM via the PPSP program the past five years.

Q: Do Case graduates get into the "top" medical schools?

A: Most people who ask this mean the medical schools ranked highest by US News and World Report. The most highly ranked school is not always the best choice for a particular student. But, yes some of our students do get into very highly ranked schools. In 2002, we had students who matriculated in Washington University (2), Emory (2), University of Pittsburgh and Vanderbilt. In 2003, we had students who matriculated in Stanford, Emory (2), Yale, Washington University, Duke and Johns Hopkins. **In 2004 we had students who matriculated at Washington University (2), Emory, University of Pennsylvania, Baylor, University of Rochester, Michigan State and University of Chicago-Pritzker.**

Q: If you were to recommend one course beyond the basic premedical requirements, what would that be?

A: Biochemistry

Q: If you were to recommend one extracurricular activity that is most important for a premedical student, what would that be?

A: Any of these: Volunteer at the Free Clinic, a hospital, a nursing home, or a camp for ill or disabled children; get training in Basic EMT or sports medicine; shadow a physician.

Q: Should I apply to D.O. school?

A: The Doctor of Osteopathy degree is an excellent choice for students attracted to the holistic, wellness-oriented D.O. philosophy and the osteopathic hands-on techniques for locating and relieving stress in the body. The training is comparable to M.D. training and all specialties are open to D.O.'s; however, a larger proportion of D.O.'s than M.D.'s do enter primary care. Recent Case graduates have entered at least four different D.O. schools.

Q. When is it best to take the MCAT exam, April or August?

A: The best time to take the MCAT is when you are *best prepared*. Most students take the MCAT in April of their junior year. Students typically receive their MCAT score at the beginning of June allowing them to submit their medical school application relatively early in the rolling admissions process. Students taking the MCAT exam in August will receive their scores in early October. Medical schools will not review an application until it is complete with a MCAT score. Although this is later in the rolling admission process, you are best off waiting to take the MCAT in August if you feel you need the extra for preparation to do your best on the exam.