

Cornell Courses That Satisfy Most Medical/Dental School Admissions Requirements 2010-2011

To apply to medical school you need to fulfill minimum requirements: 1) complete one full-year course (8 semester hours) of biology, inorganic chemistry, organic chemistry, and physics, and 2) take the MCAT (Medical College Admission Test) which tests your knowledge of these subjects. In light of these academic-related requirements the Health Careers Program Advisory Board reviews Cornell courses in order to guide students in their choice of courses. Below are suggested course sequences for Cornell premeds/pre-dents.

Keep in mind that professional schools have their own rules regarding courses they will accept. For details on a particular school's requirements students are advised to read medical/dental school web pages, *Medical School Admission Requirements* (MSAR) and the *ADEA Official Guide to Dental Schools*, or contact admissions offices. Also, review the MCAT web site, www.aamc.org/students/mcat/preparing/creatingstudyplan.htm, to see the science topics on the exam and to determine that you have covered all the topics. Checking topics may be especially useful if you have mixed course sequences.

Recommended minimum courses for medical and/or dental schools	Rec. Sem. Hrs.	Cornell University courses suggested to fulfill these requirements
<p style="text-align: center;">CHEMISTRY General or Inorganic</p>	8	<p style="text-align: center;">Chem 2070 (207) + 2080 (208) or Chem 2150 (215) + 2160 (216)* For students with strong chemistry backgrounds (Honors) (Will fulfill Engineering requirements) or Chem 2090 (209) + 2080 (208) Required sequence for Engineering</p> <p>See also "Course Selection." It is possible that mixing sequences (e.g., 2150 + 2080, 2150 + 2090) may not provide full coverage of MCAT topics, despite satisfying the medical school requirements for two semesters of introductory chemistry. See MCAT website Chem 2060 is a one-semester introduction to chemistry. Although it can be used to replace Chem 2070 in the chem. 2070-2080 sequence, this is not recommended, and students particularly those with weaker chemistry background, may find themselves disadvantaged in Chem 2090.</p> <p>*Student who decide not to proceed to Chem 2160 should see the Director of Undergraduate Studies (DUS) in the Chemistry Department for possible alternative courses in that department. See AP section.</p>
<p style="text-align: center;">Organic</p>	8	<p style="text-align: center;">Chem 3570 (357) + 3580 (358) + 2510 (251) Usual sequence or Chem 3570 (357) + 3580 (358) + 3010 (301)* or Chem 3590 (359) + 3600 (360) + 3010 (301)* or Chem 3590 (359) + 3600 (360) = 2510 (251)</p> <p>Chem 3590, 3600, and 3010 are honors courses *Note: Chem 3000 is a prerequisite for 3010.</p>
<p style="text-align: center;">PHYSICS General or Introductory</p>	8	<p style="text-align: center;">Physics 1101 (101) + 1102 (102) Usual sequence, not calculus based, individualized instruction/auto-tutorial or Physics 2207 (207) + 2208 (208) Usual sequence, calculus based or Physics 1112 (112) + 2208 (208) Possible sequence, also using calculus or Physics 1112 (112) + 2213 (213) + 2214 (214) Possible 12 semester hour sequence*</p> <p>*This three-semester sequence gives minimal coverage to fluids. Students using only parts of a sequence or mixing parts or two and three-semester sequences may find certain MCAT topics not covered. This is the preferred sequence for Engineering students. See MCAT website. Crossovers between 1101/2208 and 2207/1102 are acceptable; consult appropriate faculty.</p>

<p style="text-align: center;">BIOLOGY (full year with lab)</p>	<p style="text-align: center;">8</p>	<p>Preparations for application to medical schools entails two goals relevant to biology coursework: 1) meeting the requirement of many medical schools for a full year of introductory biology with a laboratory AND 2) coverage of most topics tested by the MCAT. These goals can be met through either of the following options:</p> <p>OPTION 1 BioG 1105 + 1106 Introductory Biology (individualized instruction/auto-tutorial)</p> <p>OPTION 2 BioG 1500 Investigative Biology Laboratory + BioG 1440 Introduction to Comparative Physiology + BioMG 3300, 3310-3320, 3350, 3330 (summer) Biochemistry, or NS 3200 Introduction to Human Biochemistry + one of the following: BioMG 2800 or 2810 (includes lab) Genetics BioG/BioMG 1350 Principles of Cell & Developmental Biology BioMI 2900 General Microbiology BioEE 1780 Evolutionary Biology and Diversity</p> <p>Other combinations of courses can also fulfill these requirements. Students are advised to consult the MCAT website and the syllabi of relevant Cornell courses. See specific school web sites and publications to determine if they accept AP for the biology and other premed/preudent requirements.</p> <p>A new biological science curriculum began 2010-2011. Students who completed only one semester: 1101/1103, 1102/1104, 1105, 1106, 1107, or 1108 should consult with an advisor in the Office of Undergraduate Biology (OUB) or their college on how to complete the biology requirement. To receive timely email updates related to the transition to the new biology curriculum, complete a student profile in CCNet (career.cornell.edu) and select "Health Careers Notices" in Career Services Desired.</p>
<p style="text-align: center;">Advanced</p>		<p>A minimum of one advanced course is recommended, though not required, by most medical/dental schools. Some possible advanced courses—those numbered 2000 and above— are listed under Option 2. See the OUB for other possible courses.</p>
<p style="text-align: center;">MATHEMATICS</p>		<p>Finite Math 1105 (105) + Calculus I: 1106 (106) or 1110 (111) or Calculus I: 1110 (111) + Calculus II: 1120 (112) or 1910 (191) or Calculus I: 1106 (106) or 1110 (111) + statistics</p> <p>College work in mathematics is required by some schools, highly recommended by almost all. A very few schools require one year of calculus. Statistics is accepted as college level mathematics at most schools, and at a few schools statistics is required or recommended. Suitable statistics courses include the following, however, some may only be open to students in a particular college.</p> <p>Applied Economics and Management 2100 (210) Biometry 3010 (301) Industrial and Labor Relations 2100 (210) Mathematics 1710 (171) Policy Analysis and Management 2100 (210) Psychology 3500 (350) Sociology 3010 (301) Engineering 2700 (270) Statistical Science 2100 (210)</p>

ENGLISH	6	Most medical schools will accept First-Year Writing Seminars (FWS) in fulfillment of their writing requirement. The John S. Knight Institute for Writing in the Disciplines, 101 McGraw Hal, will provide a notice stating that First-Year Writing Seminars taken in any department at Cornell are equivalent to English composition courses. Some medical schools, however, specifically require English Literature to fulfill their writing requirement. For example, Cornell's med school requires one writing course focusing on "English-language literature." Students who plan to apply to such schools should take either their First-Year Writing Seminars or advanced courses in the Department of English. See specific school's web pages for details.
ADDITIONAL COURSES		Students need to be aware that some institutions have very specific requirements and/or recommendations in addition to the almost universal requirements listed above. You need to be concerned about other additional courses only if they are required by your state medical/dental school or by schools in which you have a particular interest. <u>See MSAR and/or Official Guide to Dental Schools well in advance of the time of application.</u>
COURSE NUMBER CHANGES		Beginning academic year 2008-2009 Cornell assigned four-digit courses numbers. Previous three-digit course numbers are in parenthesis. To verify any course number see www.cs.cornell.edu/gries.courses/

Courses Beyond the Requirements

Students should work with their academic advisors in choosing courses beyond the requirements. Some students decide to take courses similar to those taken in medical school in an attempt to demonstrate that they can perform well in a course taught in medical school or to ease their studying during the first year of professional school.

These advantages, however, should be weighed against possible disadvantages. These include not being able to take an elective that may be important to your personal development and undergraduate education or which will not be available for you to take once you are in medical school.

As you plan, also keep in mind that medical/dental school admissions officers frequently speak of wanting to see both breadth and depth in a student's academic record. In choosing courses you will want to strike a balance between these, avoiding a narrow approach on the one hand and a superficial approach on the other.

Satisfactory/Unsatisfactory Grades

Do not take any requirement for medical/dental school on a Satisfactory/Unsatisfactory basis.

Transfer Students

Transfer students should check that the courses they have taken at their previous college meet the requirements for entrance to medical/dental school. See also "Transfer Students' Guidelines" in the Health Careers portion of the Cornell Career Services web pages, www.career.cornell.edu.

Summer School Courses

Required courses for medical/dental school may be taken during summer session here or at other universities whose educational standards are comparable to Cornell's. However, it is usually preferable to take these science courses at Cornell during the regular school year in order to demonstrate that you can perform well even while carrying a full course load. Your college advising office can explain the procedure for attending summer school elsewhere.

Advanced Placement (AP)

Courses accepted by the college as satisfying graduation credit requirements may be used to replace introductory requirements listed above at many medical/dental schools. **Check specific statements in medical and dental school web pages.** Some schools advise students to pursue advanced courses in biology, chemistry, physics, or other sciences which provide reinforcement of previous courses, even though they may have met the minimum science requirements while in high school. Most medical schools require a year of biology taken in college. If you have AP credit in biology (this AP credit must be indicated on your official transcript), most schools recommend that you take two semesters of advanced biology and want you to have taken a lab course in college.

Students with AP Biology should see the Office of Undergraduate Biology web page at www.bio.cornell.edu/advising/ap.cfm for information on using AP Biology credit at Cornell.

Course Selection

Any of the courses outlined previously will fulfill the prerequisites for medical/dental schools. Which ones to take depends on several factors: your interest in the subject; test scores; high school preparation; experience in rigorous courses; and major and academic goals. Placement in the right courses is very important. *Cornell Courses of Study* describes the courses; the academic advisor and the directors of undergraduate studies (DUS) in relevant departments can explain the differences among courses and can help you select your courses.

Sequence of Courses

Recommended order The recommended order in which to take these courses is: mathematics, chemistry or biology, physics. Biology, chemistry, and mathematics need to be started by the sophomore year if you plan to apply to medical/dental school at the end of your junior year for attendance in the fall following graduation. Courses are usually (but not necessarily) taken during these years:

- First-Year Writing Seminars - freshman
- Inorganic Chemistry – freshman/sophomore
- Biology – freshman/sophomore
- Mathematics – freshman/sophomore
- Physics – sophomore/junior
- Organic Chemistry – sophomore/junior

Mathematics Strong quantitative skills are essential for chemistry and physics. It is recommended that college mathematics precede physics.

Organic Chemistry For organic chemistry, lecture courses must be taken before, or concurrently with laboratory courses. Co-registration in organic lecture and organic laboratory is not necessary.

Natural Science Major If a you think you want to major in a natural science, the usual advice is to take two science courses or mathematics and science during freshman year.

Humanities or Social Science Major If you think you want to major in a humanities or social science discipline, you may want to take only one mathematics or science course during freshman year in order to be able to experiment with courses from several departments. However, this may require taking two or more science courses in both the sophomore and junior years.

Unsatisfactory Performance in a Course

Repeating Courses Generally speaking, courses should not be repeated. A poor performance (below C-) can be redeemed partially by a good performance in another course which demonstrates strength within the same area. In cases such as required science courses, it is usually advisable to repeat the course. An academic advisor will help to explore these points further as well as credit hour and grade point average implications which vary among colleges.

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

The MCAT assesses an applicant's understanding of concepts in basic level science courses in biology, inorganic chemistry, organic chemistry, and non-calculus-based physics. The DAT also tests this knowledge, but not physics, though it is a dental school course requirement.

In light of this, the MCAT/DAT should not be taken until courses are completed (or are within a few weeks of completion) and you have studied for the exam. The MCAT is administered over twenty times a year at designated computerized test sites, and the DAT is available at multiple times throughout the year at these sites.

Students should review the MCAT web pages especially www.aamc.org/students/mcat/preparing/creatingstudyplan.htm to see the science topics in the exam and to determine that they have covered all the topics. The *DAT Program Guide* lists DAT science topics. Checking topics may be especially useful if you have mixed course sequences.

For More Information

Students who create a Cornell Career Services profile on line in CCNet (career.cornell.edu) and request Health Careers Program emails will be updated on health careers topics and programs throughout the year.

