

**Advice for: Pre dental Students, Case Western Reserve University**  
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Office of Undergraduate Studies, SEARS 357

Phone: 368-2928 for appointment

If you are a pre dental student at Case, we highly recommend that you join the Case Pre-Dental Society (or at least get on their mailing list).

*Check out the new 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.*

There will be plenty of job opportunities for dentists in the coming years. Many dentists are expected to retire and dental care will be in demand by an aging population whose members have kept their teeth. New techniques and a variety of specialties make this an exciting, interesting, and satisfying career - one in which you can still run your own small practice and set your own hours, or you can join a group practice. Salaries for dentists have increased over 78% since 1990, and the hourly income now exceeds that of primary care physicians. We strongly encourage everyone considering a specific health career to explore several others, however, just to make sure you are making the right choice for you (and for your future patients!). A quick comparison of several health careers is included on the next-to-last page of our "premed handout," with links to further information.

## I. WHAT COURSES DO YOU NEED?

### A. General Requirements

Admission requirements are set by the dental schools, so they do vary from school to school. Thus, you should familiarize yourself with the requirements of the dental schools that you are considering. These should include any publicly funded dental schools in your state of residence since these generally give preference to state residents. The Case School of Dentistry (unlike the School of Medicine) does *not* give special preference to residents of Ohio; whereas the Ohio State University College of Dentistry does give preference to state residents.

In general, dental schools require an understanding of the basic principles of science - commonly requiring: **one year of biology, two years of chemistry** (one year of inorganic and one year of organic chemistry), and **one year of physics** - all of these to be accompanied by a laboratory experience. Some dental schools require **mathematics**, and a few require (or recommend) **biochemistry**, or statistics, or microbiology. Communication skills are valued, and **a year of English** is often required. Studies in the humanities and in the social and behavioral sciences are often suggested, and sometimes required. Any courses that improve hand eye coordination are also valuable.

Information on the requirements, tuition, application procedures and curriculum of individual dental schools, can be found in the book, ADEA Official Guide to Dental Schools, published by the American Dental Education Association. A copy of the most recent edition is available in the Office of Undergraduate Studies, Sears 357. You may order your own \$35 copy (and other publications, such as Opportunities for Minority Students in United States Dental Schools for \$10) on line at <https://www.adea.org/publications/Order/orderform.htm> or from: ADEA, Attn: Publications, 1625 Massachusetts Avenue, NW Washington, DC 20036-2212

### **B. Specific courses at Case that can fulfill predental requirements**

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

**Chemistry:** To meet the requirement for a full year of inorganic chemistry plus lab, most Case students take **Chemistry 105-106 and 113** during the first year. Engineering students take Chem 111, 113 and Engr 145 and may want to take or audit Chem 106. Most Case students **take Chemistry 223-224 and 233 (and often 234)** during the sophomore year. If a school requires biochemistry, this can be met with Bioc 307 or Chem 328.

**Physics:** To meet the requirement for a year of physics with lab, most Case predental students take **Physics 115-116** (laboratory included). Students who are pursuing an engineering degree or a BS degree in some of the science departments, will take Physics 121-122. Physics can be taken at any time since there is no physics on the DAT.

**Biology:** To meet the requirement for a year of biology with lab, Case students are advised to take at least two, but preferably all three, of the core courses required of biology majors: **Biology 214** (Genes and Evolution), **Biology 215** (Cells and Proteins) and **Biology 216** (Organisms and Ecosystems). Predental students may start Biology in the first year or sophomore year. Students in Biomedical Engineering do not take Biology 216, since they take EBME 201-202. Some schools recommend microbiology (Biology 343).

**Mathematics:** Some dental schools require mathematics (often only one semester). The majority of Case predental students take Math 125 (and often 126). Those students who are pursuing an engineering degree, or who are obtaining the BS degree in certain science departments, take Math 121 (and 122). Some schools recommend statistics.

**English:** Since many dental schools require a year of English, you should take at least one semester of English beyond English 150 or the First Year Seminar. This may also help prepare you for the reading comprehension section of the DAT test.

**Interesting fact:** Approximately 37% of 10<sup>th</sup> graders in Cuyahoga County have or have had braces.

---Case School of Dentistry Survey, quoted in Plain Dealer, Sun. Aug. 27, 2000 p25-D

**POSSIBLE SCHEDULE OF PREDENTAL COURSES FOR STUDENTS IN  
ARTS AND SCIENCES MAJORS**

<b>Year</b>	<b>Fall</b>		<b>Spring</b>
<b>First year</b>	<b>MATH 125 CHEM 105 CHEM 113</b>		<b>[MATH 126] CHEM 106 BIOL 214</b>
<b>Sophomore</b>	<b>CHEM 223 CHEM 233 BIOL 215</b>		<b>CHEM 224 CHEM 234 BIOL 216</b>
<b>Junior</b>	<b>PHYS 115</b>		<b>PHYS 116</b>

**POSSIBLE SCHEDULE OF PREDENTAL COURSES FOR STUDENTS IN  
ENGINEERING AND SOME OTHER B.S. PROGRAMS**

<b>Year</b>	<b>Fall</b>		<b>Spring</b>
<b>First year</b>	<b>MATH 121 CHEM 111 CHEM 113</b>		<b>MATH 122 ENGR 145 PHYS 121 [CHEM 106 take or audit]</b>
<b>Sophomore</b>	<b>CHEM 223 CHEM 233 PHYS 122</b>		<b>CHEM 224 CHEM 234 BIOL 214</b>
<b>Junior</b>	<b>BIOL 215</b>		<b>BIOL 216</b>



### C. Choice Of Major

Your choice of major should be based on your interest and aptitude. Though dental schools are looking for students with demonstrated ability in basic science courses, and they like to see some advanced work in science, they also value a strong overall academic performance in any major. Over the past few years, successful Case pre-dental students have majored in History, Anthropology, Psychology, Accounting, Biology, Chemistry and English. Some students are not aware that they can major in Nutrition - an excellent choice.

## II. WHAT ELSE DO YOU NEED TO DO TO PREPARE FOR DENTAL SCHOOL?

### A. Observe a dentist

There are not as many options for "dental volunteer work" as there are for medical volunteer work. However, it is important that you spend some time observing a general practice dentist. Some schools even require this. (For example, Ohio State requires 30 hours of observing a general practice dentist.) Perhaps you can eventually even assist the dentist once you get familiar with procedures. You may also want to observe a specialist, such as an orthodontist or maxillofacial surgeon, but it is important that you find out if you will like general practice since not everyone gets to become a specialist. When looking for an opportunity to observe, the best place to start is with your own personal dentist in your home town. Alternatively the Career Center might be able to help you find a dentist near Case.

### B. What about research?

Research is a valuable experience, *if you are interested in research*, but it is not a requirement for entering dental school. Some of you may eventually want to include dental research in your career, so now is good time to explore and find out if you like doing research. You will at least be reading dental journals in your practice, and research is also valuable to gain a better understanding of the research process leading to the journal articles.

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.*

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. (Application: <http://www.Case.edu/artsci/biol/hhmi/spur.html>) 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**. 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](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 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.

### C. **Take the DAT**

All U.S. dental schools require the **Dental Admission Test (DAT)**. Information about this test can be found at: <http://www.ada.org/prof/ed/testing/dat/index.asp> The DAT allows dental schools to compare the ability and achievement of applicants from schools that differ in admissions standards and/or academic rigor. Generally, you should take the DAT in the spring or early summer of the year before you plan to enter dental school. This will allow you to apply to dental schools during the summer after your junior year. (The DAT may be retaken but only after 90 days have passed.)

**The only format for taking the DAT is by computer** at a Sylvan Technology Test Center. You can schedule the DAT for a day and time that is convenient for you, but you do need to plan ahead. To register for the test, you need to fill out an application and send it in with a fee of \$165 (certified check or money order) to the Dental Admission Testing Program. The DAT Program will then send you an 800 number to call to arrange for the computer test. The fee covers having your scores sent to five dental schools, with an additional fee of \$10.00 for each additional school beyond five. **Do not send DAT scores to AADSAS.**

**Register for the DAT online at:** <https://www.ada.org/prof/ed/testing/dat/Online/index.html>

**Or obtain a paper registration packet for the DAT from:**

Department of Testing Services, American Dental Association  
211 East Chicago Avenue, 6<sup>th</sup> floor  
Chicago, IL 60611-2678  
Phone: 1-800-232-2162

You can obtain a \$15 DAT tutorial from <http://www.ada.org/prof/ed/testing/dat/prep.html>

Another way to practice for the DAT is a program called Top Score that can be purchased from [www.scholarware.com](http://www.scholarware.com)

The DAT consists of **four sections**, each made up of multiple choice questions:

**I. Survey of the Natural Sciences** (90 minutes)

- A. Biology
- B. General Chemistry
- C. Organic Chemistry

(Note that there is **no physics** on the DAT!)

**II. Perceptual Ability** (60 minutes)

**III. Reading Comprehension** (50 minutes)

**IV. Quantitative reasoning**

The maximum score on each part of the DAT test is 30, and a score of 17 is considered average. When scores are reported, the perceptual aptitude test score (PAT), an average of the other scores (Academic Average), and an average of the science sections (Total Science) are presented separately.

### **III. APPLICATION TO DENTAL SCHOOL**

**A. Where should you apply?**

First, and foremost, you should apply to any dental schools in your state of residence that receive public funding, since these generally give preference to state residents. Private dental schools are less prone to favor state residents. African American students may consider applying to dental schools at Howard University and Meharry Medical College, and Seventh Day Adventists may consider applying to 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 ADEA Official Guide to Dental Schools book, which includes 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. Students who graduated from Case enrolled in the following dental schools in fall 2003: Virginia Commonwealth University, University of North Carolina, Case Western Reserve university (4), University of Detroit Mercy, Temple University (2), SUNY Buffalo, University of the Pacific, and Ohio State University. A few Case students who applied to enter in 2003 were not accepted, but none of these was a 2003 graduate of Case.

## **B. The AADSAS Application Service**

(Note the former American Association of Dental Schools has changed its name to the American Dental Education Association, but they have not yet re-named the AADSAS - American Association of Dental Schools Application Service.)

The AADSAS allows you to apply to any of 54 U.S. dental schools with one application; and the only way to apply to these schools is via AADSAS. To apply to non-AADSAS schools (Louisiana State University, Medical College of Georgia, University of Mississippi, University of Tennessee) you must contact the school to get an application and submit it directly to the school. Links to all US Dental schools are at: <http://www.adea.org/links.html>

The AADSAS fee is \$195 for the first school, and \$60 for each additional school up to ten, with fees dropping slightly for each school beyond 10. Fees are higher for adding additional schools after the AADSAS application has been submitted.

The easiest and newest way to complete the AADSAS application is to **fill it out and submit it on-line** at: <http://aadsas.adea.org/>. Or you can download the application and send it in by mail: [http://www.adea.org/AADSAS/2003Application/2003\\_Application\\_Front\\_Page.htm](http://www.adea.org/AADSAS/2003Application/2003_Application_Front_Page.htm)

You will need to have official copies of all your **transcripts** sent to AADSAS. Give the registrar a transcript matching form that you can print out from your AADSAS application. AADSAS also accepts and distributes **letters of recommendation** (see below). DAT scores do not go to AADSAS - they are sent directly to each dental school that you indicate when you take the test or later.

Final deadlines for receipt of all materials by AADSAS vary from school to school. In any event, **you should get your application in well before the deadlines**. A dental school with a deadline of Feb. 1 might fill its class by December and after that you might be applying for a place on the waiting list!

### **NOTE: Additional Materials**

Additional materials must often be sent directly to the dental school at the time you are submitting the AADSAS application. Frequently a fee is required (beyond the AADSAS fee), and often a supplemental application, a photo, or recommendations (if not sent to AADSAS) are needed at this time. In other cases supplemental materials are sent to the dental schools only after the dental school has requested them. The AADSAS instructions list all the required documents and when they are needed.

## **C. Letters of recommendation**

You should request **letters of recommendation**, in the spring of your junior year. 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 at least two science teachers and the pre-dental advisor (one of us!). **We do not have a premedical or pre-dental committee**, but this assortment is generally an acceptable substitute. AADSAS handles only three letters per student, so if you want to send letters from a research sponsor, volunteer supervisor or employer you may have them sent to the Career Center and then directly to the dental schools.

**Make an appointment to see each person who is writing you a letter.** When you are requesting a letter from one of us, you can speed things up a little by picking up our "handy recommendation form" at Sears 357 and filling it out before the appointment. **Unless you are abroad for your junior year, please see us before mid-June. We do not have predental advising appointments in July.** If you are requesting a recommendation from one of your professors, 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 during your appointment you can discuss further some of the items on your resume, share some of your background and reasons for wanting a dental career.

Provide each person writing a recommendation, a **letter of evaluation matching form** that you print out from the AADSAS application, and ask the person to send the letter to AADSAS. We do not provide any recommendations in sealed envelopes (and most other faculty do not either). If you prefer to have your letters sent directly from Case to the dental schools rather than via AADSAS (for example, if you are applying to non-AADSAS schools or if you would like to have more than three letters sent), then you need to open a file at the Career Center, SEARS 206, and have the letters sent there.

#### **D. Then the INTERVIEW!**

After your application at a particular school is complete (including any supplemental application, dental school fee, recommendations, DAT scores 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). 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.

Pointers for a successful interview:

1. Give some thought as to why you want a career in dentistry and how this desire evolved. Say more than "I want to help people," "I had braces," or "I like science."
2. If there are any recent advances in dentistry mentioned in the news, read about them. Talk to your own dentist about new ways to avoid decay, types of fillings or new approaches to replacing lost teeth. Shadow a general practice dentist (and perhaps an orthodontist or other specialist) - anything that will indicate that you have a strong interest in this field and know what you are getting into.
3. Learn about the school and the community in advance and formulate some questions about the curriculum, opportunities for involvement in the community etc. Arrange to go on a tour and talk to current students as well. (If your interview is not at the dental school, and you are accepted, arrange a visit before you make your final decision.)
4. 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.

#### IV. WHAT ARE YOUR CHANCES?

The number of applicants was decreasing in recent years (1997-2001), but there was a small increase in 2002 and a huge upswing in 2003. (For example, Case School of Dentistry went from 1435 applicants in 2002 to 1727 applicants in 2003). Nationally, for the 2000 entering class, there were 7770 applicants, and 4234 students actually entered dental school. That was an **acceptance rate of 54%**. National totals of applicants and acceptances are not yet available for the most recent years, but the acceptance rate must now be a little lower than in 2000.

##### Grade point average (GPA)

The mean **GPA** of students accepted to dental school varies widely from school to school. For the 2000 entering class, the overall means for accepted students were:

**Total GPA 3.35**

**Science GPA 3.25.**

##### Dental Aptitude Test (DAT) scores

The average scores on the DAT of accepted students also vary widely from school to school. For the 2000 entering class, the overall means for accepted students were:

**Academic Average 18.5**

**Perceptual Ability 17.7**

**Total Science was 18.3.**

See the table in the Official Guide to Dental Schools for statistics on individual schools for the latest entering class.

#### 8. SPECIFIC INFORMATION ON THE TWO OHIO DENTAL SCHOOLS for year 2002-2003

	<b>Case School of Dentistry</b>	<b>Ohio State University College of Dentistry</b>
<b>Required courses</b>	Inorganic Chemistry + lab      6 hr Organic Chemistry + lab      6 hr Physics + lab      6 hr Biology + lab      6 hr English      6 hr	General Chemistry + lab      2 sem Organic Chem (lab optional)      2 sem Physics + lab      2 sem English composition or lit      2 sem
<b>Data of matriculants Entering 2001</b>	Mean overall GPA: 3.34 Mean Science GPA: 3.23 DAT Academic Ave: 18.47 DAT Perceptual Aptitude: 18.7	Mean overall GPA: 3.45 Mean Science GPA: 3.31 DAT Academic Ave: 19.1 DAT Perceptual Aptitude: 18.6
<b>Residence of Matriculants 2001</b>	11 In State 59 Out of state	83 In State 21 Out of State
<b>Tuition/year Estimated total expenses</b>	\$29,325 tuition/year \$50,442 estimated total expenses/year	\$12,840 tuition/year (state residents) \$25,533 estimated total expenses/year (state residents)