

# How to Prepare for Graduate School in the Sciences

## A. COLLEGE PREPARATION

### Freshman & Sophomore Years

- Take a broad spectrum of introductory science courses (including laboratories): biology, chemistry, physics, math, computer sciences.
- Take courses that help develop skills in reading comprehension, writing and public speaking.
- Get involved in research at your home institution (MARC, MBRS or similar programs).
- Establish a good relationship with your school's health careers advisor or the graduate school advisor at your campus career center — help them get to know you.

### Junior Year

- Take advanced level science courses: cell biology, molecular biology, microbiology, physiology, organic chemistry, biochemistry, etc.
- Take liberal arts courses: economics, history, literature, philosophy, etc.
- Expand your research experiences.
  - Programs such as: MARC/MBRS, McNair, Howard Hughes, etc.
  - Summer research programs
  - Independent study
- Begin preparation for GRE or MCAT.
  - Take preparation courses (Kaplan, Princeton Review, etc.), review copies of old exams, take timed practice tests (for the GRE prepare for the computer version).
  - For MD/PhD candidates, take MCAT's in April of your 3rd year.
  - For PhD candidates, take computerized GRE in early fall (September or October) of your 4th year; if required, take appropriate subject test and/or writing assessment at the same time.

### “GUT CHECK”

Somewhere between the end of the second year and the beginning of the third year you must ask yourself “Have I prepared myself appropriately and do I have a strong enough record to apply for the graduate or professional program in which I am interested?” If the answer is “no” it is time to re-evaluate your career goals and your learning strategies.

### Senior Year

- Submit your applications early (be realistic in your choice of programs).
  - MD/PhD application by September 1<sup>st</sup> (or earliest possible date)
  - PhD application by December 15<sup>th</sup>
- If possible, visit the schools, programs or departments that interest you.
- Take advanced level science courses, especially those which are research and techniques oriented.

## B. WHAT STUDENTS SHOULD BE LOOKING FOR IN A GRADUATE PROGRAM

- Academic Considerations
  - Do you feel comfortable with the program's structure and organization?
  - Are there sufficient faculty choices?
  - Is there flexibility within the program to change directions?
  - Are there adequate university support systems (library, computer facilities, specialized equipment, etc.)?
- Financial Considerations
  - Can you afford it? (Determine total costs involved, including housing, food, etc.)
  - Availability and types of financial aid (loans, fellowships, research and teaching assistantships, etc.)
- Other Considerations
  - Geographic location of the school
  - Campus environment
  - Appropriate support systems (advisors, tutoring-services, etc.)
  - Diversity of students
  - Record on placement of graduates

## C. WHAT GRADUATE SCHOOLS ARE LOOKING FOR IN APPLICANTS

- Strong undergraduate academic performance as indicated by
  - Strength of course load
  - GPA
  - GRE scores
- Superior preparation in the discipline for which the student is applying.
- Strongly motivated students, who understand why they are applying.
- Students who can clearly express themselves both orally and in writing.
- Students who can integrate information.
- Research experience (primarily in the sciences).

## D. SOURCES OF INFORMATION ABOUT WHICH SCHOOLS YOU COULD AND SHOULD APPLY TO

- Word of mouth
  - Your professors
  - Graduate students on your campus
  - Friends, former classmates who are already in graduate school
- Internet Sources
  - Peterson's Guide web site
  - Individual school web sites
  - Professional society web sites (AAMC, ACS, ASM, APS, etc.)
- Library
  - NRC Report “Research Doctoral Programs in the US”
  - Peterson's Guides (and other guides to graduate education)
  - Magazines that rate graduate programs (US News and World Report, etc.)

# Preparing Applications

## A. GENERAL COMMENTS

- The application represents you and your level of interest and seriousness.
- It should be neat, accurate, complete, and typed.
- Read the directions completely and answer all the questions fully.
- Call the institution if an instruction is unclear to you.
- Make a copy of the completed application.
- Send in all applications well before the deadline.
- After you send applications in, keep track of their progress (see an example of a tracking sheet at the end of this document).
  - Are you getting notifications of completeness?
  - Are you getting invited for interviews at the expected time?

## B. TRANSCRIPTS

- Be aware that graduate programs usually require official transcripts from EVERY institution that you have attended.
- Make sure your grades are recorded accurately, and that you report your grades and GPA correctly in your application.
- If your recent GPA, or your GPA in your intended field of study, is considerably higher than your overall GPA, emphasize that fact in the application. Ask your recommenders if they would consider doing so, too.

## C. LETTERS OF RECOMMENDATION

- Check and follow the directions for submission of your letters.
  - Find out if someone will write a good letter for you. How? Ask! "Do you think you know me well enough to write a letter of recommendation for me?"
  - Aim to get a group of letters, which, when taken together, will complement (instead of duplicating) each other and will provide the fullest relevant picture of who you are NOW.
  - When possible, choose letter writers who know more than one aspect of you, for example, one of your research advisors who could also write about how effectively you interact with other people and your willingness to take initiative.
  - Lots of letters with no real content may be held against you.
  - Plan ahead!
  - Help your letter writers help you!
    - Let faculty get to know you in class and during office hours.
    - Make an appointment to discuss your application plans.
    - Discuss concerns that your letter writer could address.
    - It takes at least an hour to write a good letter
- \*Give your recommenders plenty of time. Request letters of recommendation well before the application deadline (summer for MD, early fall for PhD).

## D. THE STATEMENT OF PURPOSE: SOME THINGS TO THINK ABOUT

- Your statement represents you and your level of interest and commitment. It should be written in your own words, neat, typed, accurate, and grammatically correct. Check spelling and punctuation.
- Read the questions carefully and make sure you answer them completely.
- It is expensive for schools to invest in educating graduate students and medical students. Your goal is to help admissions committees decide why they should invest in you. Let the reader get to know you; tell your own story.
- Show that your decision to pursue a particular career is an informed decision - how has your interest in that career developed over time? What kind of training will help you reach that career goal? Explain why you are interested in the school that you're applying to.
- Show that you understand the content of your previous research projects. Sound like a scientist, rather than a "pair of hands."
- Listing a position or activity in your résumé should be different from talking about it in your statement of purpose.
- Describe reasonable, well-informed goals, and why they're of interest to you, rather than pie-in-the-sky idealism.
- Document your strengths with facts rather than editorial comments. Provide specific information rather than unsubstantiated generalities.
- Adversity is not an acceptable excuse for mediocre credentials, but it may be given some consideration.
- Members of admissions committees often read dozens of applications, if not more. Write in a way that helps the reader. Keep your statement relevant, well-organized, and concise. For example, an introductory sentence in each paragraph is useful. Avoid "gimmicks"; they may get the readers' attention, but often in a negative way.
- Writing a good statement takes time - give yourself enough time to think about what you want to say, to write several drafts, and to read them critically. How does the statement sound when you read it out loud to yourself?
- Ask someone who is experienced at reading statements to review yours and discuss it with you.
- Reread your statement before your interviews.

# Appendices

## 1. USEFUL URLS FOR INFORMATION ABOUT GRADUATE PROGRAMS

- American Association of Medical Colleges <http://www.aamc.org/>
- AAMC Group on Graduate Research, Education and Training <http://www.aamc.org/members/gre/start.htm>
- Gradschools.com <http://www.gradschools.com>
- Graduate Record Examination <http://www.gre.org>
- Interview Feedback <http://interviewfeedback.com>
- Peterson's <http://www.petersons.com>
- Science Magazine's Academic Connection <http://recruit.sciencemag.org>

## 2. USEFUL URLS FOR ACCESSING PREDOCTORAL FELLOWSHIP INFORMATION

- Community of Science <http://www.cos.com>
- Ford Foundation <http://www.nationalacademies.org/fellowships>
- Howard Hughes Medical Institute <http://www.hhmi.org/grants/index.html>
- National Institutes of Health <http://www.nih.gov>
- National Science Foundation <http://www.nsf.gov>
- Science Magazine's Next Wave <http://www.grantsnet.org> (sponsored by HHML and AAAS)