

WHY GO TO GRADUATE SCHOOL?

*Have you seen that the most interesting job postings ask for an advanced degree or specialization?
Do you dream of being a lifelong learner?
Do you enjoy conducting research?*

If so, then pursuing a graduate degree might be the path for you.

A graduate degree is evidence of an in-depth understanding of a particular field and demonstrates (typically) years of research. Having an advanced degree would also put you on track to pursue an academic career at a higher education institution. Typically, tenure-track faculty members at universities hold doctorate degrees. If a job in industry or government is your goal, consider the greater average annual salary of graduate degree holders versus professionals with a bachelor’s degree.

Graduate school is a big investment in time, money and effort. Career goals evolve over time. Many students choose to work for a few years to confirm their professional interests, and then apply to the graduate program that can help them get to the next level. Read on for tips to research and apply to graduate school.

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MASTERS OR PH.D.?

	M.S/M.Eng.	Ph.D.
What?	Earn a specialization in a more specific area of interest. Can be professional (M.Eng.) or research based (M.S.)	The goal is to become an expert in a specific field
How Long?	Generally 2 years if full time but it depends on the program	Generally 4-5 years but it depends on the program
Why?	Specialize to pursue a career in industry that does not require a great deal of research expertise	Pursue a career in a research oriented field such as a government lab or a career in academia
Is It For You?	Build skills for your career in a program with fairly rigid course options. (Research/ thesis in M.S., not M. Eng.)	Freedom to explore areas of personal interest but requires passion, discipline and determination

WHERE TO APPLY? DO SOME RESEARCH

- Gather information about several programs by researching online:
 - www.petersons.com/gradchannel
 - www.gradschool.com
 - <http://www.mastersinengineering.com/>
 - www.graduateguide.com
- Meet with Clark School faculty members who have performed research or are currently performing research in your desired field to acquire more information about the graduate school process. The world of research is very tight knit and connected. Some of the professors on campus may have graduated from the programs you are considering and may even have some contacts to share.
- As you review each program, consider the quality of the faculty, special concentrations or research opportunities related to your interests, the reputation of the institution, the facilities, the overall cost, housing, geographic location, surrounding community, and any other factors of personal importance.
- Application deadlines vary by program and institution. They typically fall in November, December or January but can be later. Submit applications to graduate programs a minimum of 15 days early but preferably 30 to 90 days early to allow for slow or even lost transcripts. Also, some graduate schools assign fellowships or grants earlier than the advertised deadline.
- Visit prospective institutions. Many schools offer low cost or free campus visits for prospective graduate students. This would also be a great experience to include in your personal statement.
- Contact professors who run labs at your target institution that you would be interested in working in. Email or call the professor explaining that you are planning to apply to graduate school and their research is of interest to you. If you make a good impression, the professor could notify the graduate school application committee that s/he would like to work with you and you could also be in the front running for grants and fellowships.

THE APPLICATION PROCESS

The goal of a graduate admissions committee is to identify applicants who demonstrate the potential to become important researchers and leaders in their field. While each graduate admissions committee is a bit different, the following criteria are important to most admissions committees:

- **Undergraduate GPA (especially the last two years of college)**
- **Graduate Record Exam (GRE) scores**
- **Personal statement/Admission essay**
- **Recommendation letters**
- **CV (extended resume)**

It is recommended that you create portfolios for each program you are applying to with all of the necessary information there in order to be more organized and eliminate the risk of forgetting to turn something in to a school.

GRADUATE RECORD EXAMINATION (GRE)

GRE requirements and minimum scores vary among graduate schools. Although many schools do not publish a listing of preferred scores, you should aim to score in at least the 80th percentile on both the Quantitative and Analytic sections of the GRE in order to be a competitive applicant for a graduate engineering program.

Medical schools require the MCAT, and MBA programs usually require applicants to provide GMAT scores. To find out if specific subject tests are required, carefully review all of the admission applications for each program. Take note that some institutions have their own entrance exams for engineering programs. Research the prospective program thoroughly so you do not miss these critical exams.

Try to begin studying for these entrance exams as soon as possible. The recommended time is during the summer before senior year so that you can take the GRE during the fall.

Admissions committees begin the evaluation process by considering GPA and GRE scores (or those of other standardized tests). However, these quantitative measures only tell a small part of an applicant's story.

RECOMMENDATION LETTERS

Letters of recommendation provide context for an applicant's numerical scores. It's important that the faculty who write your letters of recommendation know you well so that they can discuss the person behind the GPA and GRE scores. Generally speaking, letters written by professors known to committee members tend to carry more weight than those written by "unknowns." Letters written by well-known people in the field, especially if they signify that they think highly of you, can be very helpful in moving your application towards the top of the list.

To ensure that your letters cover all the bases is to provide your references with all the necessary information. Do not assume that a faculty member will remember anything about you. Make an appointment to speak with your letter writers in person. Create a "cheat sheet" that includes talking points for the recommender to include in the letter such as classes you have taken with them or special achievements on your resume.

Give your letter writers plenty of time (three to four weeks at minimum) and send a polite reminder email at least a week ahead of the due date if the letter has not been submitted. Also, remember to send a thank you note to each of the individuals that write recommendation letters for you.

Provide each recommender with relevant background information:

- transcript (note courses with them)
- admission essay
- resume
- professional goals
- application due date
- copy of the application recommendation forms
- stamped envelope to mail completed letter

PERSONAL STATEMENT/ APPLICATION ESSAY

Whether you are applying for graduate school or a summer research experience, you will probably have to write one or more essays, called a statement of purpose or personal statement. This essay is different from the one you wrote to apply to college as an undergraduate.

An effective personal statement:

- demonstrates knowledge of your field of study and the specific program to which you are applying
- illustrates your potential to conduct research and contribute to the field
- explains *HOW* and *WHY* the events you describe have shaped your attitude, focus, and intellectual strengths
- allows the readers to get a feel for you as a person, as a student and researcher
- is a structured *description of selected achievements*, not a chronological *list* of your accomplishments or an autobiography

Personal Statement Do's and Don'ts

DO	DON'T
✓ Demonstrate knowledge of program/ university/ faculty, reasons for applying to this particular program	✗ Copy and paste from a sample or template, or from previous personal statements
✓ Mention if you have visited the campus or contacted faculty to discuss their research	✗ Exaggerate your accomplishments (This is considered lying.)
✓ Address the questions in the prompt with specific examples from your experience	✗ Include clichés or obvious statements like, “I am a lifelong learner”
✓ Use clear, concise, professional language	✗ Throw in jargon to sound smarter (you won't)
✓ Describe how you've overcome adversity using positive tone	✗ Dwell on the negative aspect of your experience, or lack of experience
✓ Reference industry and academic sources in your chosen field	✗ Base your essay just on your individual opinion/ experience
✓ Proofread your essay and have others read and comment on your draft	✗ Submit an essay with errors in grammar, spelling or punctuation
✓ Let your personality show in your writing	✗ Try to incorporate humor, or address potentially controversial/ inappropriate topics

Before You Start Writing

Prompts for personal statements can be general, essentially asking you to make the case for why you should be admitted to the program. Some applications will require you to answer a series of short essay questions. You should be prepared to address some of the questions below. *Ask yourself...*

- What makes you different, unique or impressive compared to your classmates?
- What kinds of influences have shaped who you are (academic, personal)?
- How have life (non-academic) experiences influenced your choice? Where are you coming from? Why are you coming here? Where are you going? Are there any adversities that have shaped your self-image, career, or education?
- How did you become interested in this field and what have you since learned about it (and about yourself) that has further stimulated your interest and/or reinforced your conviction that you are well-suited for this field?
- How have you learned about this specific field (through classes, reading, seminars, work or other experiences)?
- If you have worked during your college years, what have you learned (leadership or managerial skills) and how has that work contributed to your growth?
- Are there any gaps/discrepancies in your academic record that you should explain (great grades but mediocre GRE scores)? Note particular challenges (ex. needed to work late to support family while in school).
- What personal characteristics (integrity, compassion, persistence) do you possess that would enhance your prospects for success in the field or profession?
- What skills (leadership, communicative, analytical) do you possess and what kinds of concrete proof can you provide?
- Why might you be a stronger candidate and more successful and effective in the field or profession than other applicants – what sets you apart?
- What are the most compelling reasons they should consider you?
- What challenges have you overcome throughout your academic career?
- What path do you envision your career taking (short- and long-term)?

Structuring Your Statement

After you brainstorm, creating an outline will help you form a coherent, organized essay. This is a suggested format to help you get started.

- I. Introduction/Personal History
 - a. Original and engaging start. (Remember, no clichés!)
 - b. Introduce a central theme that will guide the reader through the essay. This might be in the form of a short anecdote.
 - c. Strong thesis statement about your interest in and qualifications for the program
- II. Academic Accomplishments
 - a. Avoid restating your resume; instead tie one or two relevant events or experiences to skills and qualities you possess.
- III. Research Experience
 - a. What did you learn from performing research that you can take with you as you pursue graduate studies?
 - b. Has this experience had any impact on your interests and goals?
 - c. Highlight any accomplishments or difficulties that you overcame.
- IV. Additional Information
 - a. How has a particular work, volunteer or extracurricular experience shaped you as a person? What skills did you gain?
 - b. Explain any circumstances that had an effect on your academic performance.
- V. Goals and Future plans
 - a. Demonstrate your interest in the field.
 - b. Discuss specific and realistic goals that are relevant to the program you are applying for.
 - c. How will this institution/program will be a good fit for you and vice versa.
- VI. Closing
 - a. Briefly summarize your past accomplishments, who you are now, and what you hope to accomplish.
 - b. Relate this section back to the opening paragraph; complete the story for the reader.
 - c. Finish with a strong last sentence that shows leaves a lasting impression of you to the reader.

What's your Story?

- Take the reader on a journey through your academic and professional life.
- Do your best to relate what you know about the field, using relevant examples.
- Refer to experiences (work, research, etc.), classes, conversations with other professionals, books you've read, seminars you've attended, or other sources about the career you want and why you believe you are suited to it.
- What you choose to include is a demonstration of your judgment; give careful consideration to your topics.
- Focus more on your own personal accomplishments and less on what you aspire to achieve.

FINANCIAL AID AND SCHOLARSHIPS

Graduate school is a big investment, in time, effort and money. There are ways to reduce the financial burden of studies a

If you are applying for financial aid, you will probably need to complete one or more standardized forms, which may include the Free Application for Federal Student Aid (FAFSA). The FAFSA is a financial questionnaire that is revised annually and can be obtained online at www.fafsa.ed.gov. Because some schools will also want you to complete the College Scholarship Service Financial Aid Profile or their own supplemental forms, contacting each of the schools to which you are applying will ensure that you receive the appropriate forms and that you comply with the schools' requirements.

Research scholarships and fellowships by checking national organizations (ASME, ASCE, AIAA, etc). Look at the (prospective) department website or contact the Director of Graduate Studies in the appropriate engineering department.

Examples of engineering scholarship websites:

University of Maryland National Scholarship Office
<http://www.scholarships.umd.edu/scholarships.html>

American Society of Engineering Education
<http://www.asee.org/>

Army Research Laboratory (ARL) Postdoctoral Fellowship Program
<http://www.asee.org/arl>

Bell Laboratories
<http://www.bell-labs.com/fellowships/>

Department of Homeland Security
<http://www.orau.gov/dhsed/>

The National Academies website
<http://www7.nationalacademies.org/fellowships/>

National Defense Science and Engineering Graduate Fellowship Program (NDSEG)
<http://www.asee.org/ndseg>

National Science Foundation Graduate Research Fellowship Program (NSF-GRFP)
www.nsf.gov/grfp

Naval Research Laboratory (NRL) Postdoctoral Fellowship Program
<http://www.asee.org/nrl>

Women's Transportation Seminar (Washington DC Chapter)
<http://www.wtsnational.org/>

Zonta International (Women & Aerospace)
http://www.zonta.org/site/PageServer?pagename=zi_issues_programs_amelia_earhart

For additional information our Graduate School website has a section on finances (<http://www.vprgs.umd.edu/>).

Financial Aid 101

Need-based financial aid programs include

- *work-study programs*
- *private, federal, and state loans*
- *grants*
- *fellowships*
- *tuition remission programs*

Merit-based aid is awarded primarily on academic accomplishment, talent, or promise.

Financial aid sources are administered by

- *universities*
- *state and federal governments*
- *private foundation and other sources*

Some funds may be destined for special populations—i.e., the economically and educationally disadvantaged, disabled students, veterans, women, and minorities.

National Science Foundation Graduate Research Fellowship Program

The NSF GRFP program provides three years of funding for graduate students in Science, Technology, Engineering, Mathematics, and STEM education. Awards are available for both masters and doctoral degree students. Undergraduate seniors may apply for this award as well. There are other programs funded by the NSF including Graduate Research Opportunities Worldwide (GROW) and the Graduate Internship Program. Please be advised that these programs are very competitive and proper planning must be taken so that all due dates are met. Visit www.nsf.gov for more information, application details, and deadlines.

Juniors, you can begin thinking about what programs you would be interested in and research those to get a better idea of what graduate school will be like. Attend graduate school expos and information workshops. Also, apply to NSF REU's to get first-hand experience with graduate school research.

ACCEPTED! – MAKING A DECISION

Keep a spreadsheet of the programs to which you have applied, including their admissions notification dates. Once you start to hear back, make note of the decision date, financial aid provided, etc. for each institution.

- Visit the school if you have not done so already. There is a good chance that the institution will offer free visits to the school for accepted graduate students.
- Not all funding is created equal. Grants, scholarships, or fellowships usually have few obligations required of the recipients. Research assistantships can provide you with hands on experience, mentoring opportunities and the chance to publish in peer-reviewed journals as a student (important for those considering a career in academia). Teaching assistantships also provide great experience, but tend to take up more time than you expect.
- Respond to all offers of acceptance. If other institutions have offered you more financial aid, this would be the time to inform your school of choice. They may be able to negotiate the funding they provide.
- Contact professors that you would be interested in working with.
- Continue to apply for additional funding sources.

If you would like an Engineering Co-op & Career Services advisor to proofread your application essay for content and form, please:

- Send it to us by email at careerengr@umd.edu **at least 7 business days before you wish to submit it**
- In your email, include the prompt, and list 2-3 weekdays and times that you can be available to discuss edits
- Outside of peak recruiting season (September-October or February-March), we will usually respond within 2 business days

GRAD SCHOOL APPLICATION TIMELINE

9 – 12 months before applications are due:	<ul style="list-style-type: none"> <input type="checkbox"/> Research schools and, if possible, visit <input type="checkbox"/> Study and/or take a test preparation class for the GRE or other required standardized test
6- 9 months before applications are due:	<ul style="list-style-type: none"> <input type="checkbox"/> Take standardized tests <input type="checkbox"/> Consider which faculty members to ask for recommendation letters <input type="checkbox"/> Research sources of financial aid and collect all necessary forms <input type="checkbox"/> Obtain application packets from selected schools
4- 6 months before applications are due:	<ul style="list-style-type: none"> <input type="checkbox"/> Write a draft for each admissions essay (if applicable) <input type="checkbox"/> Ask a faculty advisor to review your essay and write recommendation letters for your application <input type="checkbox"/> Arrange for your official transcripts to be sent, consider asking the registrar to wait until fall grades are in before sending (if time permits)
2 - 4 months before applications are due:	<ul style="list-style-type: none"> <input type="checkbox"/> Complete your application forms. (If you need a typewriter, the Co-op office and the Career Center both have one available.) <input type="checkbox"/> Mail completed application packet. <input type="checkbox"/> Most schools send a postcard upon receipt of each application. Keep track of these. If you don't receive a postcard or letter, contact the admissions office by email or phone to ensure that your application has been received before the deadline.
After the application packet is mailed:	<ul style="list-style-type: none"> <input type="checkbox"/> Send thank you letters to all of those that provided recommendation letters or reviewed your information. <input type="checkbox"/> Fill out the Federal Student Aid (FAFSA) application as soon as you get your tax forms www.fafsa.ed.gov. <input type="checkbox"/> Visit schools to which you've been accepted. Discuss acceptances and rejections with a faculty member or the career/graduate admissions counselor at your school. And finally notify the program of your acceptance. <input type="checkbox"/> Relax and enjoy the rest of your senior year!

For more information:

- <http://gradschool.about.com/>
- <http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools>