

# Applying to Graduate School in Engineering

This handout summarizes some key information about the typical graduate school application process for Engineering disciplines. Please be aware that every institution has different requirements and deadlines, and the information provided here is only a general guide to common application processes.

## OVERVIEW OF THE “TYPICAL” APPLICATION PROCESS

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### Summer before Senior Year

1. Identify potential schools, based on your research interests, family/personal needs, geographic preferences, and career/personal goals.
2. Study for and take the GRE ([www.ets.org/gre](http://www.ets.org/gre)).
3. Identify 3+ references, at least two of who are faculty members who know you well.
4. Determine application deadlines for schools where you are interested in applying.
5. Draft application statement(s).

### Fall of Senior Year

1. Narrow your list of places to apply; generally 3-8 completed applications is a good goal. Ideally, you will apply to a range of schools (size, location, ranking, etc.) where you can make a strong case that you are a good investment and “fit” for their program.
2. Identify your backup plan – “safety” school, work, volunteering, travel, etc.
3. Prioritize your applications by deadline or your interest, realizing that you may get tired or run out of time and not complete all of the applications on your initial list.
4. Complete and submit your applications; have transcripts, recommendations and GRE scores sent to each school.
5. Confirm receipt of all application materials.

### Spring of Senior Year

1. Faculty typically review graduate applications in January and February; a few early admissions may be sent in February, with the bulk of admissions decisions made in March. Admissions and financial aid decisions are often made separately.
2. Visit each campus you are considering, meet with faculty and current graduate students, tour the facilities, consider living options, etc.
3. Decide on a graduate program, typically in April.

## ACADEMIC RESUMES

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Many graduate programs request that you submit a resume with your application materials. You should tailor this resume to graduate school, and follow any specific content or layout requirements indicated by the graduate program. The following bullets cover some of the typical components of an academic resume, but please realize that **not all of these may apply to you**.

### Common Elements of an Academic Resume

- **Contact information:** make sure that your name is highly visible and that there is clear contact information, including a professional email address and a phone number. It is not always necessary to include multiple phone numbers or addresses; consider how else you might be able to use that space.
- **Objective:** on an academic resume, this is typically not necessary since you will explain your objectives for pursuing a graduate degree in detail in your application statement(s).
- **Education:** include your college degree information, expected graduation term, and GPA with scale (e.g., 3.358/4.0). As appropriate, include additional majors/minors, concentrations, study abroad activities, or accomplishments (Dean's List, Honors College membership, etc.). Also list professional training activities or certifications (e.g., EIT or PE status; certification in software or equipment), training completed as part of a co-op or internship, and other professional development activities you have participated in (teamwork training, communications skills seminar, etc.).
- **Research Experience:** include both paid and volunteer experiences, as well as substantial research projects completed as part of your technical coursework. Use a descriptive position title ("Undergraduate Research Assistant", "Team Leader, Senior Design Project") and include the name of the course or the lab/faculty member you worked with. Use bullets to describe the research skills you developed, specialized software or equipment you used, and how your work contributed to a larger research project. If your project was funded externally, indicate the funding source (NSF, NIH, DOD, etc.).
- **Professional Experience:** include both paid and volunteer opportunities in engineering or other technical fields. Use a descriptive position title ("Engineering Co-Op", "Software Development Intern") and include the name of the company or organization. Use bullets to describe the technical, engineering or research skills you developed, specialized software or equipment you used, and how your work contributed to a larger effort within the organization.
- **Research and Professional Experience:** depending on your background, it may be appropriate to combine the previous two headings into one.
- **Teaching Experience:** if you have substantial experience teaching or assisting in an academic setting (as an undergraduate teaching assistant, a tutor, etc.) you should include that somewhere in your academic resume. If you don't have enough teaching experience to justify a separate section, you should include it with your professional experience.
- **Publications and Presentations:** common types include journal papers, conference proceedings/presentations, workshops, and posters; if you have substantial publications you may want to separate this section into more than one header. Include posters presented at UURAF, presentations made as part of co-op experiences or internships, and

technical papers that have been accepted, submitted or are in preparation. Indicate co-authors as appropriate.

- **Skills:** if you are applying to a graduate program where specialized skills would be desirable, it might be appropriate to list them in a separate section. Examples might include experience with laboratory equipment, testing techniques, or software tools. Remember that it may be more appropriate to integrate these skills into your research or professional experience section – it will depend on the extent of your experiences.
- **Outreach and Service:** emphasize STEM (science, technology, engineering, math) outreach programs or activities you have participated in, describing the audience (e.g., K-12 students, high school teachers) and activity. Include other leadership and volunteer activities on campus and in the community.
- **Honors and Awards:** list scholarships, honors and awards that you have received. If you need to save space, consider a brief description of related awards (e.g., “College and Departmental Scholarships for Academic Achievement, awarded 2007-09”) rather than an exhaustive list. Emphasize honors related to your research or engineering experiences, such as best paper/poster awards, academic achievements, etc.

### **Common Formatting Considerations for an Academic Resume**

- Use a standard font style that is very easy to read – something like Times New Roman, Verdana, Arial, etc. Make sure that the font size is also readable (usually 10+ point).
- Avoid using italics or underlining. Use CAPS or **bold** to emphasize information.
- Leave some whitespace on the page; one-inch margins on all sides are typical.
- Most undergraduates have enough experience by graduation for a one-page resume. Longer resumes might be appropriate if you have extensive undergraduate experiences.
- In general, you **should not** include experiences prior to college or non-engineering/research/technical experiences. An exception would be if you had a substantial engineering or professional experience in high school (an internship, leadership in a STEM outreach program like FIRST Robotics, research experience, etc.).
- Many career service professionals suggest that you NOT use an existing Microsoft Office (or similar) resume template, as that suggests that you lack the word processing skills to format a document on your own and may limit the information you can include.

## ACADEMIC STATEMENTS

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Many institutions have specific criteria or guidelines for academic statements; other institutions will simply ask for an academic statement and you'll have to develop your own format. The following content and formatting guidelines are for Academic Statements submitted to **the MSU College of Engineering**; the resulting statement is fairly general and you should be able to adapt it to other purposes as needed.

### Content

Your Academic Statement should be a concise statement of your plans for graduate study, your career goals, and how MSU's graduate program will help you meet your career and educational objectives. **Your Academic Statement must include the following statement:** "My intended area of specialization in the graduate program in (DEPARTMENT) at Michigan State University will be in \_\_\_\_\_." If you have already been in contact with faculty or staff at MSU regarding your application for graduate studies, please list these contacts in your Academic Statement.

When preparing your Academic Statement, please include the following information:

- Briefly describe key experiences that led you to graduate studies. Examples might include research experiences, internships, coursework or extracurricular activities.
- Share specific, relevant examples of how these experiences helped you develop skills for success as a graduate student. For instance, you might demonstrate ways that you have synthesized knowledge from the classroom, developed research skills, communicated effectively, acted as a leader, or gained skills and responsibility over time.
- Make a clear connection between your previous experiences and your current interest in graduate studies. If your intended area of specialization in graduate school differs significantly from your previous experiences, please briefly explain why you decided to change focus.
- If applicable, explain any gaps or discrepancies in your academic record and share unusual obstacles or hardships that you have overcome in pursuit of your educational objectives.
- Explain how your goals for graduate study relate to your longer-term career plans, including the pursuit of additional degrees or certifications if applicable.

### Format

Your Academic Statement should be concise, and no more than 2 pages when formatted in Times New Roman 12-point font with 1-inch margins and single line spacing.

## PERSONAL STATEMENTS

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Many institutions have specific criteria or guidelines for personal statements; other institutions will simply ask for an academic statement and you'll have to develop your own format. The following content and formatting guidelines are for Personal Statements submitted to **the MSU College of Engineering**.

### Content

Your Personal Statement should concisely describe how your background and life experiences – including social, economic, cultural, familial, educational, or other opportunities or challenges – motivated your decision to pursue a graduate degree.

When preparing your Personal Statement, please address the following questions:

- How well do your personal goals for education and research fit with the interests of our faculty and the research activities within our department? Briefly describe research areas or questions that you find interesting and identify any specific faculty, labs or research projects at MSU that are of particular interest to you.
- How have you demonstrated your leadership skills, or your potential as a leader? For example, you might share specific examples of how you made contributions as an officer in a student organization or how you assumed a leadership role within a team or during a professional internship. You could also discuss your potential for leadership in graduate school and afterwards by sharing your career goals and discussing your capacity to make a distinctive professional or scholarly contribution in your field.
- How have you contributed to a diverse educational community, or how will you do so as a graduate student? How have you promoted understanding among persons of different backgrounds and ideas, or how will you do so as a graduate student? Examples might include service activities, leadership roles, study abroad, language study, etc.
- If applicable, please describe any barriers or obstacles that you have overcome in pursuit of your educational or personal goals. Examples might include economic, social or health challenges, being the first in your family to attend college, family obligations, etc.
- If applicable, please describe aspects of your personal background that will enhance the diversity of MSU's graduate student body, such as being multi-lingual, participating in a McNair or TRIO program, attending a minority-serving institution, etc.
- If applicable, please describe anything else in your personal history, experience, or aspirations that distinguishes you from other applicants to our graduate programs.

### Format

Your Personal Statement should be concise, and no more than 2 pages when formatted in Times New Roman 12-point font with 1-inch margins and single line spacing.

## **“COMBINED” APPLICATION STATEMENTS**

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Some institutions ask for a single application statement, which may combine elements of “typical” academic and personal statements. If the institution you are applying to does not have specific criteria or guidelines for your application statement, you may find the following general outline helpful in drafting a single / combined application statement.

**Introduction:** what makes you unique? Start an interesting story that engages the reader.

**Experiences that led you to graduate school:** continue the story by sharing specific, relevant experiences that helped you develop skills for success as a graduate student. Demonstrate ways that you have synthesized knowledge from the classroom, developed research skills, communicated effectively, and acted as a leader. Show that you have gained skills and responsibility over time. If applicable, explain any gaps or discrepancies in your academic record and share unusual obstacles or hardships that you have overcome.

**Reasons for graduate study:** make a clear connection between your previous experiences and your current desire to go to graduate school. Describe the research areas and questions that interest you, and identify 2-3 faculty members or research labs/projects of interest at the specific school. Describe how your background and experiences have prepared you to do research in that area, and if necessary explain your decision to pursue research that differs significantly from your previous experience.

**Conclusion:** Share how your goals for graduate study relate to your longer-term career plans, including pursuit of additional degrees if applicable. Express enthusiasm for graduate study and highlight aspects of this school’s graduate program that will allow you to gain the experience and skills that you desire.

## ADDITIONAL RESOURCES

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### MSU Resources

- College of Engineering Graduate Programs: <http://www.egr.msu.edu/academics/graduate/>
- MSU Engineering Graduate Recruiting: [gradrecruit@msu.edu](mailto:gradrecruit@msu.edu)
- MSU Graduate School: <http://grad.msu.edu/>
- MSU Writing Center: <http://writing.msu.edu>

### Graduate School Information

- ASEE (American Society of Engineering Education ) Profiles of Engineering programs; includes graduate admissions information, size, expenses and financial aid, etc. Searchable online profiles: <http://profiles.asee.org/>
- US News & World Reports 2011 Rankings of Engineering Schools: <http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-engineering-schools/eng-rankings>

### Academic Resumes

- The MSU Career Passport (<http://careernetwork.msu.edu/pdf/CP10.pdf>) has extensive descriptions of resume-building and samples of good resumes.
- The MSU Career Services Network offers additional examples and resources for creating resumes (<http://careernetwork.msu.edu/finding-an-internship/resumes-letters-1>).
- The Purdue OWL (Online Writing Lab) offers a variety of information about resumes and vitas, including samples (<http://owl.english.purdue.edu/owl/section/6/23/>).
- The Resume Resource has some examples of CVs (aka “academic resumes”) that you may find interesting (<http://www.resume-resource.com/examples-cv.html>)

### Application Statements

- The Committee on Institutional Cooperation (CIC) offers a general resource for those considering graduate studies in any area called “Applying to Graduate School: Tips, Timeline, and Tools of the Trade.” <http://www.cic.net/libraries/diversity/gradschoolguide.sflb>
- The Purdue OWL (Online Writing Lab) has compiled resources for developing statements for graduate school applications, including example statements, advice from admissions officers, and top 10 lists of things to do (or not to do) in your application. <http://owl.english.purdue.edu/owl/resource/642/01/>
- Peterson’s EssayEdge offers multiple “lessons” on how to write graduate application statements, including structure, style, and tone, as well as many sample essays and concrete “before” and “after” examples. <http://www.essayedge.com/graduate/essayadvice/course/>
- The University of Missouri has compiled detailed information on preparing an application for the NSF Graduate Research Fellowship program; much of this advice is also applicable to other graduate application statements. <http://gradschool.missouri.edu/financial/assistantships-fellowships/fellowships/external/nsf-research-fellowship/>