What is Undergraduate Research?

Undergraduate research typically involves an undergraduate student working with a professor, Ph.D. student, or Post-Doctoral scholar on a research project. This means that your research mentor will teach you valuable laboratory, computational, or theoretical skills in return for your assistance on a project. The subject of the project is dependent on what lab you join—some professors have a narrow focus while others pursue a broad range of projects. It’s easy to feel intimidated, but the expectation of most professors is that their undergraduate research assistants have no prior background in their field of study. Undergraduate research is just as much a mentoring process as it is a tangible contribution to discovering new knowledge in a given field.

Why Research?

Research experience supplements your classroom education. 
Research teaches you what sort of problems can be solved by your major. 
Research allows you to foster strong relationships with faculty and graduate students. 
Research is a fantastic experience for professional development. Engineering research inevitably yields dividends.

Reaching out to Faculty

Contacting faculty out of the blue can feel awkward, and it’s something that most people don’t have experience doing. However, there’s no other way that you’re going to join the lab of a professor doing research that interests you. Try using the following email template as a starting point for reaching out to faculty of interest! You don’t need to stick to the script exactly; feel free to add personal details and any information that might be relevant to your professor.
Dear [PROFESSOR NAME HERE],

I am a [FRESHMAN, SOPHOMORE, ETC] at the University of Pennsylvania studying [MAJOR]. I have taken an interest into research in your lab, specifically your work with [INSERT SOMETHING YOU LIKE ABOUT THEIR RESEARCH], and I am interested in working on a project in your lab during the upcoming semester. I would enjoy learning more about your work in [FIELD OF STUDY]. I have attached a resume below and would love to discuss opportunities in the future when the next semester begins.

Thank you for your time,

[YOUR NAME]

Research Programs and Funding

In addition to getting involved with professors through their labs, there are a variety of programs that can either set you up with faculty or provide you funding. Here are some major examples at Penn and in Penn Engineering:
Having funding for research ahead of time can also make a professor more inclined to take you on for a research project. There are plenty of research funding opportunities available to engineering specifically located here: [https://research.seas.upenn.edu/undergraduate-research/](https://research.seas.upenn.edu/undergraduate-research/) (in addition to PURM and the Rachleff Scholars) and funding can also be achieved through CURF: [https://www.curf.upenn.edu/research/funding-opportunities](https://www.curf.upenn.edu/research/funding-opportunities). One that is particularly useful, if you’ve already established a relationship with a faculty member, is the CURF Faculty Mentorship Grant. It’s a similar program to PURM but with a greater likelihood of receiving funding.

If you’ve done research before and are considering a career in the field, there are pretty fantastic opportunities to boost your credentials. Fellowship information can be found here: [https://www.curf.upenn.edu/fellowships](https://www.curf.upenn.edu/fellowships). In addition, the NSF funds Research Experience for Undergraduates (REUs) that allow you to do research at other academic institutions. Find more information about that here: [https://www.nsf.gov/crssprgm/reu/](https://www.nsf.gov/crssprgm/reu). Both of these tools can serve to pad a graduate school application down the road, in addition to expanding your research portfolio.
Timeline

1. First Year
   a. Attend campus career fairs
   b. Join organizations on campus
   c. Connect with Career Services
   d. Update resume
2. Sophomore/Junior
   a. Attend campus career fairs
   b. Attend recruiting activities
   c. Attend Career Services workshops
   d. Update resume
   e. Start building a professional network
   f. Practice interviewing skills
   g. Start job search
3. Senior Year
   a. Continue job search
   b. Attend recruiting events
   c. Continue building a professional network

The recruitment timeline for different industries, companies, and positions are highly variable. For some industries (investment banking, consulting, private equity, venture capital, etc.), the recruitment process for a summer internship can be as early as one and a half years before the internship begins.

For other industries (software engineering, electrical engineering, etc.) the process may begin as the school year starts. As a rule of thumb, to be prepared for whatever the timeline is, you should research the companies and industries that interest you as early as possible. Keep tabs on the positions that interest you so that you can be prepared to apply for these internships, especially in your later college years where internships are viewed as more important.

It is never too early to put the time into researching your career beyond college, and that research naturally begins with a focus on the internship timeline.
Resources

Your largest resource is undeniably your fellow peers at Penn! Many students go through the internship and recruitment process in similar ways. Always feel comfortable with talking to your classmates about opportunities, and never be afraid to ask for advice from people informed about the process.

The Penn Career Services website and Handshake are helpful in connecting you to advisors and opportunities. From providing resume and cover letter tips to informing you of upcoming recruitment information sessions, these two resources are often forgotten. Take advantage of them!

Plenty of resources exist online to help you with recruitment, but usually at a cost. Try to exhaust all resources at Penn before looking outside of the school in hopes of finding the secret tip that will help you land a job offer. If you do look outside of Penn for interview books or recruitment guides, be sure to research which resources are best suited for your interests and questions.

Interviews

Interviews are an intermediary event in between your application to a position and an offer from a company. Interviews are very different and highly dependent on the industry, company, and even the interviewer you get that day. Generally, it consists of a recruiter or employee that asks you a mix of behavioral and technical questions related to the role you are applying in. Sometimes, companies will have multiple rounds of interviews that progress in difficulty and selectivity, while others may employ group interviewing or virtual interviewing. There are some common tips to guide your preparation for the process, regardless of the approach the company takes.

Firstly, research the company and the role you are applying for. Interest in the company and the role should be matched with an understanding of the company, what they do, and the responsibilities of the role. Don’t just look at the first page of google results, truly do research on the company and leverage your network to get a deeper understanding of what happens behind the scenes. Not only will this knowledge add an element of sophistication to your interview, but it will help you realize if this role is truly the right fit for you.