

- Many CMU students seek research opportunities both within and outside of their major. Research sites may include academic, clinical, and industry settings, depending on the student's interest.
- Students prepare for research by taking introductory lab classes in their curriculum; however, this is not necessarily a pre-requisite for doing research outside of the classroom. Many students have completed research before coming to CMU either independently or in high school, and this experience is valued when applying for research opportunities. Many students even have their first research experience here at CMU.
- In most research settings, students work for a PI (or Primary Investigator, the technical term for the faculty member in charge of the lab), and work directly under a PhD student who is part of that lab to receive mentorship and supervision.

## WHERE TO CONDUCT RESEARCH

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### ON-CAMPUS

Many students perform research independently with a faculty member; however, there are also formal programs at CMU, usually for credit and most often during summer, working in a faculty member's lab. See the Undergraduate Research Office or individual departments to inquire about these specific programs.

- The best resource for students in finding research opportunities is by talking to their departmental advisor. They are often aware of departmental openings in labs and can suggest opportunities for students.
- Many departments have their ongoing research projects/interests published for students to view; check individual departmental websites for more information.
- In general, students will need to reach out via email or in-person to the faculty member and inquire about openings. Before emailing faculty, read up on the faculty member's research and prepare a tailored resume and email, explaining why you want to work in their lab and what you can contribute (if you haven't had research experience before, think about how you can market your transferable skills).
- Students should be persistent in this effort and may need to email the same faculty a few times before receiving a response. Be selective about how many faculty members you email; do not email the entire department!

### OFF-CAMPUS

Additional research opportunities can be found at other universities, medical centers, or companies to perform independent research. See below for a breakdown of some common options.

#### GOVERNMENT

- [REU](#) (Research Experience for Undergraduates):
  - These programs are sponsored by the [National Science Foundation \(NSF\)](#) to provide students with an opportunity to apply for competitive, paid, research programs at universities across the U.S. during the summer (8-10 weeks). This is open to US Citizens only.

- Typically, few freshman/sophomores are accepted into these programs (except for CIT) and it is still highly competitive for juniors. See your departmental advisor for advice on how many to apply to and what the typical acceptance rate is in your field.
  - Universities participating in REU's typically use the acceptance process as a way to vet students for future graduate programs at their school.
  - Prior research experience is not required, and often times looked upon favorably, as the REU would serve as this student's first introduction to research (students from universities that do not have many opportunities for undergraduate research would be an appealing candidate for this reason).
  - Students should consider "less-desirable locations" as an option to open up their chances of getting into a REU since the most competitive ones are usually in popular locations (note: only apply to site that you are truly interested in).
  - Typical application materials consist of a resume/CV, personal statement, transcripts, and letters of recommendation. There is typically no interview process.
  - Deadlines are from late January to late February and students typically find out if they were accepted between March and April.
- Government Labs: <https://www.nsf.gov/statistics/ffrdclist/#agency>
  - National Institutes of Health: <https://www.training.nih.gov/programs>
  - Amgen Scholars Program: <http://www.amgenscholars.com/us-program>

#### **GENERAL/MEDICAL/LOCAL OPPORTUNITIES**

- Life Sciences/Medical focused research opportunities: <https://people.rit.edu/gtfsbi/Symp/summer.htm#skip>
- General listing of research opportunities: <http://www.biology.pitt.edu/undergraduate/research/outside-pitt>
- University of Pittsburgh (<https://www.join.pitt.edu>)
- UPMC Children's Hospital (<http://www.chp.edu/research/about/training-program>)

#### **INDUSTRY/OTHER UNIVERSITIES**

- Companies may advertise open positions, often called "laboratory assistant/technician" or "research assistant/associate", and students would conduct a search for these positions as they would a typical job/internship search—see your Career Consultant to inquire about how best to apply for industry positions.
- Many students find positions at other universities by "cold-calling", a term that simply means to reach out to people whom you do not know yet, and inquire about potential openings in their lab. Students need to pitch the idea of working with them and should include a tailored resume with an email that shows they have done their research on the lab and why they are interested. Again, be persistent.

#### **FUNDING FOR RESEARCH**

- CMU has many opportunities for funding student research, and at times, the faculty member will have grant money to pay the student for their work. If a student finds research at another university and it is not an REU, this may or may not be paid. Unpaid research opportunities are very common.

**Undergraduate Research Office (URO)-** <http://www.cmu.edu/uro/index.html>

- Several types of grants are offered for independent or group research, typically ranging from \$500-\$3500.
- See URO's website for more details regarding application and deadlines.

**CMU Internship Fund (Career and Professional Development Center)**

- Currently awards selected CMU students completing an unpaid summer internship/research experience a scholarship to help offset the cost of living expenses (see our website for more details and how to apply).

**PREPARING YOUR RESUME/CV**

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As discussed above, showing the person running the lab you are ready to dive in is essential to obtaining a research position. If you do not have previous or current research experience, think about supplementing your resume with other things that can display your knowledge in the specific area (courses, research papers, relevant club involvement) and how your transferable skills will be helpful in acclimating you to the lab setting.

**Consider adding the following to your resume if you haven't already:**

- GPA (may help show the reader how well you are doing in your major)
- Research experience (paid or unpaid)
- Course projects that showcase technical/laboratory skills and additional transferable skills (e.g., teamwork)
- Leadership roles
- Relevant courses (especially if you are a freshman or sophomore, to show that you have completed some basic courses in your field)
- Skills—technical/laboratory (can include software, programming languages, machinery, instruments, techniques, etc.)