WU Research Opportunities In Biology and Biomedical Fields
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Why do research?
• To Discover
• To Understand
• To Do your best in your classes
• To Know a professor
• To Guide your career choices
• To Know a network of scientists
• To Receive awards and honors
• To Master techniques

Facts about WU Undergraduate Biomedical Research:
• ~ 70% of recent Bio graduates have participated in research
• ~ 80 students/semester register for Bio 200/500
• ≥ 300 research mentors at WU, WUMS, and affiliated institutions, including the Danforth Plant Science Center, Saint Louis Zoo, Missouri Botanical Garden
• Most faculty are interested in and enthusiastic about having undergraduates in their labs
• Most student researchers work in a lab for 10-12 h/week for 2-8 semesters and 1-3 summers.
• Honors in Biology requires ≥ 6 units of Research for Credit [Bio 500], a 3.5 GPA, & a thesis
• Mentors often write the strongest letters of recommendation

Ways to get involved in research:
• Work Study or non-WS paid position
• Research for credit: Biology 200/500
  o other Depts. have similar research for credit options
• Volunteer
  o Unpaid; often an entry into paid work
• Summer research opportunities and programs:
  o Summer Undergraduate Research Fellowships
  o Office of Undergraduate Research
  o Siteman Cancer Center
  o Danforth Plant Sciences Center
  o Many others – some at WU, some at other universities
• Summer Job
  o Usually paid by research mentor’s grant

Other opportunities:
• Intro Bio Tutoring/study groups [Kathy Hafer, Biology]
• Experiences in the Life Sciences: Bio 365 [Dr. Joan Downey]
  o PEMRAP
  o Med Prep
  o Physician shadowing
  o Clinical research and other internships
• Volunteering at WU Med and other institutions, clinics
• Science Outreach volunteer opportunities for interactions with K-12 students
**Resources for research opportunities and fellowships:**

- HHMI SURF
- Imaging Sciences pathway
- Children’s Discovery Institute
- Tyson Research Station
- Environmental Studies Program
- Mentor funding
- BA/MAT Program
- …

Biology Dept ([biology.wustl.edu/](http://biology.wustl.edu/))
- Natural Sciences Learning Center ([nslc.wustl.edu/](http://nslc.wustl.edu/))
- Undergraduate Research Web page ([nslc.wustl.edu/research.html](http://nslc.wustl.edu/research.html))

Division of Biology & Biomedical Sciences ([http://dbbs.wustl.edu/Pages/index.aspx](http://dbbs.wustl.edu/Pages/index.aspx))

Science Outreach ([http://schoolpartnership.wustl.edu/](http://schoolpartnership.wustl.edu/))

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**Finding research labs that interest you.**

1) *Find labs in a particular research area.* The web and professors can be useful. Here are some sample sites that list researchers by area of interest or by name.

- [http://www.nslc.wustl.edu/research.html](http://www.nslc.wustl.edu/research.html)
- [http://www.nslc.wustl.edu/courses/Bio500/mentors.html](http://www.nslc.wustl.edu/courses/Bio500/mentors.html)
- [http://undergradresearch.wustl.edu/getting-started/finding-mentor](http://undergradresearch.wustl.edu/getting-started/finding-mentor)
- [http://neuroscienceresearch.wustl.edu/Pages/Centers.aspx](http://neuroscienceresearch.wustl.edu/Pages/Centers.aspx)
- [http://dbbs.wustl.edu/divprograms/neuro/Pages/Faculty.aspx](http://dbbs.wustl.edu/divprograms/neuro/Pages/Faculty.aspx)

From these listings, I suggest you send me the names of 4-10 investigators who interest you. I'll try to advise you on whether they would make good mentors for a student pursuing research, BIO 500 and/or honors.

2) *Contact the head of the lab (principal investigator).* Email usually works well, but phone and lab visits are also possible. Write a brief email that explains why you are attracted to their research. Be specific and use some of the keywords that they use to describe their work; you might even download one of their papers. Tell them when you could start, whether you would be willing to volunteer, how many hours you would like to work and whether you would be interested in pursuing research for credit (e.g. BIO 500), pay or honors. You could give them a bit of background on yourself (e.g. year in school, GPA, major, relevant training or coursework). You might to list a professor or someone the PI knows as a reference.
3) **Be prepared for an interview.** These interviews tend to be less formal (in attire and content), but provide a chance for you and the PI to get to know each other.

The PI might ask:
1) Why my lab?
2) What are your career goals?
3) When could you start? How much time will you commit?
4) Do you have any questions about the research we do?

You might ask:
1) How do you incorporate undergrads in your research program?
2) Could you explain ____ about your work on ____?
3) Could you recommend some further readings on ____?
4) Ultimately, I'm interested in finding a lab for a ____ (e.g. thesis project or to prepare me for graduate/medical school). How would you support an undergrad pursuing these goals?

... An alternative approach is to visit the Human Resources Office at area universities and companies. Place your application on file and read the posted job listings. Many HR offices are online as well.

**Milestones.**

Here are some milestones that I recommend undergraduates consider as a way to envision whether they are making progress. You need not do all of these, but they provide a framework for what can be done.

1. Write an abstract for Bio200/500 with your mentor. Be sure they edit it and give you feedback.
2. Write a proposal for SURF with your mentor. Be sure they edit it and give you feedback at least twice.
3. Work up weekly updates for your mentor(s). These can be written or as a powerpoint presentation. Seek to identify your hypothesis, your methods, your results, your caveats/concerns/troubles, and your interpretation.
4. present in lab meeting
5. present in journal club
6. present at the Undergraduate Research Symposium
7. present at another meeting (e.g. some national or international meetings in your research area will have travel fellowships for undergrads)
8. take Bio 500 for two semesters (at least) and write an Honors thesis
9. Consider whether your thesis merits review for the Spector Prize (Biology Dept. award for best undergrad thesis)
10. be a co-author on a manuscript.
11. Talk about your research in your applications/interviews for postbac education/experiences.