Undergraduate Research

We strongly urge students to participate in undergraduate research during their studies at the University of Washington. Chemistry and biochemistry both publish yearly updates of available research projects. Many other departments also include undergraduates in their labs; students can contact departments directly for more information. Some examples of departments where our students have done research include microbiology, psychology, immunology, zoology, pharmacology, neurology, genetics, and pathology.

You can see a listing of Chemistry and Biochemistry faculty that may have availability in their labs at the links listed below. Students should contact the faculty directly at the contact information listed.

Suggested courses for undergrads wishing to do research:

- **CHEM 199 or CHEM 299 (pdf)** (suggested for Freshman and Sophomores)
- **BIOC 499 (pdf)** (suggested for Juniors & Seniors who have completed a Biochemistry course)
- **CHEM 399, or CHEM 499 (pdf)** (suggested for Juniors & Seniors)

Frequently Asked Questions

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Why do undergraduate research?

- There is no better way to prepare for a career or graduate study in the sciences than to do undergraduate research.
- The University of Washington is one of the top schools in the country receiving federal funds for research and therefore offers opportunities that few other schools can match.
- The experience will increase your appreciation of the scientific method and enhance your awareness of the usefulness of scientific journal articles.
- If you are considering a career in research, it will help you decide whether or not you enjoy research and also help you determine your research interests.
- It also helps you build a "portfolio" to showcase your abilities and experience.
- Exit interviews of graduates consistently show that those students who were involved in research rate it as one of the top
academic experiences that they had at the UW.

What are the requirements?

It is recommended that students have a minimum 3.0 grade point average (GPA); however, motivated students who are interested in pursuing research can approach faculty to ask about joining their research projects regardless of their GPA. Grades are indicators of a student's grasp of the basic principles required but they aren't meant to be the sole evidence of your ability to participate. If you are struggling with your performance in classes because you do not have enough time to study, you may want to reconsider undertaking research. If you do decide to pursue research be aware of the demanding time commitment involved.

Some research projects have course prerequisites. If you are unsure about whether or not you have met the course prerequisites ask the faculty advisor who oversees the project or the chemistry/biochemistry advisors.

What will I be doing?

Tasks required by undergraduate research vary widely and are based on an individual agreement between you and your faculty supervisor. The experience is designed to teach students about how and why experiments are done and to let them join in the excitement of seeing results. More advanced students may design their own research project but the majority work alongside a faculty researcher or graduate student on an on-going project. To gain a good sense of the scientific research method, it is good to work on a specific project with a hypothesis, read original scientific papers related to the research topic, perform experiments, perform data analysis or discuss data analysis with your research supervisor and write a report.

When should I start?

Whether you are interested in graduate/professional school, or plan on pursuing a career in industry, it is an excellent idea to begin research by your junior year of college. If you want to start earlier, you can approach faculty at any time that you wish. If you are still taking general and organic chemistry you may find your opportunities are somewhat limited, but many of the CHEM 199/299 projects might work for you.

How much time will I spend on research?

The University of Washington expects students to work an average of 3 hours per week to receive 1 credit hour. Students typically take two to three credits per quarter over two or more quarters. This translates into an average of 6 to 9 hours per week. However, because research is done by individual arrangement there will be some variation. Ask your research supervisor what he/she expects from you. The hours are usually flexible; however, in many areas of research complicated techniques are used which require that you are in the lab for several hours at a time, so it may be more practical to allot whole mornings, afternoons, or evenings doing research rather than one- or two-hour time blocks.

How do I register for this?

The standard vehicle for undergraduate research is through a research course such as CHEM 499, BIOC 499 or its equivalent in other departments. You will register in the department of your research supervisor regardless of your major. Most departments have an undergraduate research course numbered 499 listed in the UW Time Schedule. In order to register for undergraduate research credit you first need to gain permission from a faculty supervisor. Once an arrangement is made you will need to pick up a faculty add code from the professor's home department.

Will the research credits count for my major?

For biochemistry majors, CHEM 399, CHEM 499, or BIOC 499 automatically count towards the science elective requirement. In order
to count research done in other departments students need to petition for approval. Please consult with the chemistry/biochemistry advisors for petitioning procedures.

For chemistry majors (ACS certified degree), only students satisfying the UW Honors requirements or Departmental Distinction requirements are allowed to apply 6 credits of CHEM 399, CHEM 499 or BIOC 499 to the advanced chemistry requirement.

For non-ACS certified chemistry majors, a chemistry GPA of 3.3 is required in order to apply up to 6 credits of CHEM 399, CHEM 499, or BIOC 499 to the science elective requirement.

How do I find a faculty member to work with?

- Choose a field of interest. Read journals and other publications to help you become more knowledgeable. UW academic department websites provide individual faculty research profiles (e.g., Chemistry and Biochemistry), and many departments have information on their research projects or opportunities.
- Examine the BIOC 499, CHEM 199/299 or CHEM 399/499 research project sheets (found at the top of this page), and contact one or more of the faculty on these lists to receive further information about their projects.
- Talk to professors and teaching assistants in your chemistry classes. Take a class in the area of your interest and ask the professor or TA questions about their research.
- Check the Undergraduate Research Program website or office in 120 Mary Gates Hall or email their office for more information. They have a listing of UW professors who are interested in having students work in their labs.

What if the professor I speak with says no?

Sometimes you will need to contact more than one professor before you are able to make an arrangement. Always be positive and motivated. If you cannot work with the faculty member that you contact initially, ask if s/he can recommend the person you should speak with next. Remember: maintaining your good attitude and being persistent is part of the process.

Do I receive a grade for undergraduate research credits?

In Chemistry and Biochemistry you will receive a Credit/No Credit (CR/NC) grade. Some departments may grade research credits. The UW Course Catalog and the UW Time Schedule will say if a class is Credit/No Credit. If it does not indicate CR/NC only, then you will receive a numerical grade. Because research credits are not based on exams, it is important to ask your research supervisor how the grade will be determined and what the criteria will be.

Can I be paid for doing undergraduate research?

As a general policy, students receiving credit for research in the Department of Chemistry should not also be paid for that same research.

There are some instances where UW students do receive both credit and payment for their research time. The Biology Program coordinates the applications for a program sponsored by the Howard Hughes Medical Foundation. Mary Gates Endowment Research Grants offer grants to competitive students who are involved in a faculty research project. Nationally, there are many other programs, which include a salary for selected undergraduate researchers. Ask your advisor about these opportunities both at the UW and other schools.

We hope this page has answered some of your questions about undergraduate research at the University of Washington. It's a tremendous experience and we hope you will be able to participate. If you'd like to talk to an advisor about your research plans, please contact them at advisers@chem.washington.edu or request an in-person advising appointment.
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