



### Department of Chemistry

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Published AY 21-22



# Chemistry

At the forefront of curiosity-  
inspired research, innovation  
and education

**COLLEGE OF SCIENCE**  
ACADEMIC BROCHURE



## Chemistry is different at Oregon State

The Department of Chemistry at Oregon State University has world-class faculty, an illustrious tradition of research and teaching and state-of-the-art laboratories. The department offers both a Bachelor of Arts and a Bachelor of Science degree with options in advanced chemistry, advanced biochemistry, biochemistry, business, chemical engineering, chemistry education, environmental chemistry, forensic science, materials science and pre-med.

Highly ranked in many research areas, the Chemistry Department is a national leader in discovering new chemical approaches to improve the environment, to cure disease and to build innovative, sustainable, clean energy applications.

Our faculty is committed to transformative undergraduate teaching and high quality research. Our chemists make an impact through their discoveries: a new blue pigment that revolutionized the paint industry and attracted worldwide attention, the novel use of atmospheric carbon dioxide in energy storage devices and a new test to spot fake malaria drugs in the global market.



## Transformative power of research

To prepare the next generation of science leaders and 21st century citizens, faculty engage students in research and scientific inquiry. Students learn how to formulate hypotheses, design and execute experiments, analyze data and prepare and present their research.

The undergraduate experience is greatly enhanced by engaging in research. Students learn to balance collaborative and individual work, develop a passion for research and learn the value of teamwork.

The **Experimental Chemistry laboratory** courses are a distinctive feature of our program. These courses are centered on inquiry-based, integrated projects that emphasize first-hand experience using modern instrumentation.

The \$62 million **Linus Pauling Science Center** houses cutting-edge general chemistry laboratories for active learning.

The **Natural Products and Small Molecule Nuclear Magnetic Resonance Facility** features state-of-the-art equipment for hands-on learning.

## Student success

Advisors help students make sound academic decisions that support their success and goals. They guide students through university policies to stay on track to graduation and write recommendations to graduate/professional schools and employers. The department has a formal internship program for chemistry majors to connect them to industry. For course requirements, refer to OSU's General Catalog online. Contact the department for career or graduate program information.

A Careers in Chemistry course helps chemistry majors form peer mentoring teams, network, develop study groups and get off to a successful start in college. The OSU Chemistry Club offers students a social outlet with events, speakers and outreach activities to generate interest in science.



## Sample curriculum

### YEAR ONE

Chemistry  
Careers in Chemistry  
Calculus  
Principles of Biology  
General course:  
    Multicultural Perspectives in  
    Natural Resources  
*Study abroad*

### YEAR TWO

Organic Chemistry  
Experimental Chemistry  
Infinite Series & Sequences or  
    Power Series & Matrix methods  
Applied Differential Equations  
    or Linear Algebra  
Physics  
General course:  
    Argument and Critical Discourse  
*Summer research*

### YEAR THREE

Analytical Chemistry  
Physical Chemistry  
Experimental Chemistry II  
General course:  
    Sustainable Communities  
*Internship*

### YEAR FOUR

Inorganic Chemistry  
Experimental Chemistry II  
Biochemistry  
Approved career-supportive  
    electives  
Electives, upper division courses

## Recent graduates work as:

- Environmental chemists
- Laboratory managers
- High school teachers
- College professors
- Quality control chemists
- Pharmacists
- Forensic scientists
- Lawyers
- Biotechnology chemists
- Process engineers
- Materials science chemists
- Health professionals
- Research assistants
- Research technicians

## What can you do with a degree in Chemistry?

Engage in cutting-edge research, develop high-performance products, discover solutions for clean water and medicine and positively influence people's lives around the world.

Chemistry is the science of molecules and materials that intersects with other sciences such as physics, geology and biology. Chemistry studies range widely between atoms, molecules and chemical compounds to drug discovery, electrochemical catalysis and the chemical devices and structures of nanoscience. Given its fundamental importance to daily life, career opportunities abound for Chemistry majors.

## Career preparation

Graduates are career-ready and competitive when they enter the workforce into chemical industries or related fields as well as in wildly different areas, ranging from the food and beverages industry to medicine and health care to scientific organizations and research agencies.

Chemistry graduates are successful in top tier graduate schools in areas of analytical, materials, physical chemistry and bio-organic chemistry as well as in professional programs in science education, business, forensic science, pharmacy, medicine and dentistry. Many graduates work in a wide range of careers throughout the Pacific Northwest and across the country.



A new nontoxic, durable pigment for energy efficiency



Portable sensors for low cost medical diagnostics



A new and efficient organic synthesis