Chemistry (MS)

Research at the University of Oregon is designed to keep student researchers at the forefront of chemical science. Our programs in the traditional areas of biochemistry, inorganic, organic, and physical chemistry lay the foundation for new discoveries in materials science, molecular biology, optics, and theoretical chemistry. Though our department is medium in size, we are a leading innovator in chemistry.

A unique strength of our program is its interdisciplinary approach to research and teaching. Chemical scientists may be interested in the Institute of Molecular Biology, the Institute for Fundamental Science, the Materials Science Institute, the Oregon Center for Optical, Molecular, and Quantum Science (OMQ), and the programs in cell biology and molecular synthesis, structure, and dynamics.

We offer a traditional Master's as well as several internship-based programs. Internship salaries can help offset the cost of tuition for students in an internship program; the traditional Master's program does not include financial support.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Have in-depth knowledge in a main subfield of chemistry. Students will acquire this knowledge by doing advanced course work in the field, reading scientific papers, and optionally performing original research in the lab.
- Students pursuing a research master's degree will learn how to carry out independent chemistry research. Students will learn literature comprehension skills, will properly cite and reference techniques and methods, will be able to place one's research in context of the field, and will be able to communicate research results through scientific publications and presentations. Students will be able to formulate scientific hypotheses, understand the scientific method and apply it to research design, will become proficient at data gathering and interpretation, and will be able to write a research proposal. Students will pursue a research problem culminating in a written thesis that makes a significant and original contribution to the understanding of chemistry.
- Have professional development skills and knowledge. Students will attend professional meetings and make oral or poster presentations. Students will learn how to get internships in governmental labs, in industry, or in teaching. Students will learn soft skills, such as leadership, problem-solving, teamwork, communication.
- Understand and have awareness of professional, ethical and safety applications of their knowledge. Students will develop and understand the ethical and social dimension of science and the role and responsibility of chemistry for the advancement of the society. Students will learn and put into practice the expectations of responsible conduct in the professional field. Students will learn about laboratory safety and best safety practices.

Chemistry Major Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Department Requirements 1, 2</td>
<td>30</td>
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<tr>
<td>CH 554</td>
<td>Advanced Electrochemistry</td>
<td>28</td>
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<tr>
<td>CH 689</td>
<td>Chemistry Professional Development 3</td>
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CH 419  Physical Chemistry Laboratory  4
CH 429  Instrumental Analysis  5

**Required Math Courses**

MATH 251  Calculus I  4
MATH 252  Calculus II  4
MATH 253  Calculus III  4
MATH 256  Introduction to Differential Equations  4
MATH 281  Several-Variable Calculus I  4

**Required Physics Courses**

PHYS 251  Foundations of Physics I  4
  or PHYS 201  General Physics

PHYS 252  Foundations of Physics I  4
  or PHYS 202  General Physics

PHYS 253  Foundations of Physics I  4
  or PHYS 203  General Physics

PHYS 204  Introductory Physics Laboratory  2
  or PHYS 290  Foundations of Physics Laboratory

PHYS 205  Introductory Physics Laboratory  2
  or PHYS 290  Foundations of Physics Laboratory

PHYS 206  Introductory Physics Laboratory  2
  or PHYS 290  Foundations of Physics Laboratory

**University Requirements**
The Student will need complete the UO requirements in Writing, Arts and Letters, Social Science, and Cultural Literacy  53

**Total Credits**  219

**Admission Process**

Students apply to program during their junior year.

1. GPA and course of study to date
2. Resume including volunteer and paid work, and previous experiences
3. Personal statement including experiences, career goals and discussion of contributions to diversity, equity, and inclusion
4. Interview including technical, experience, and behavioral components