

Chemistry and Biochemistry

College of Letters and Science

Undergraduate Programs:

- Chemistry, professional option
- Chemistry, teaching option
- Biochemistry

Minors available in:

- Chemistry, non-teaching
- Biochemistry, non-teaching

Graduate Programs:

The department offers research-oriented programs culminating in a Doctor of Philosophy degree. Areas of study include:

- Biochemistry
- Inorganic chemistry
- Organic chemistry
- Physical chemistry

Graduate students also participate in interdisciplinary programs, including:

- Center for Bioinspired Nanomaterials
- Center for the Analysis of Cellular Mechanisms and Systems Biology
- Molecular Biosciences Program
- Optical Technology Center
- Thermal Biology Institute

Faculty:

For a list of current faculty:
www.chemistry.montana.edu/people/

For additional information, contact:

Department of Chemistry and Biochemistry

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www.chemistry.montana.edu/



Undergraduate students, Joe Azzarelli and Ben Naab, are 2009 Goldwater Scholarship recipients from the Department of Chemistry and Biochemistry. Photo by Kelly Gorham, MSU News.

Instruction in our department emphasizes modern concepts and methods, with extensive use of state-of-the-art instrumentation and computer-aided problem solving. Working with students in bioengineering, physics, cellular biology, neurosciences, microbiology, and the WWAMI medical education program, our undergraduates can explore nanomaterials, optical technology, thermal biology, biofilm engineering, and computer modeling of proteins and nucleic acids.

Undergraduate Research

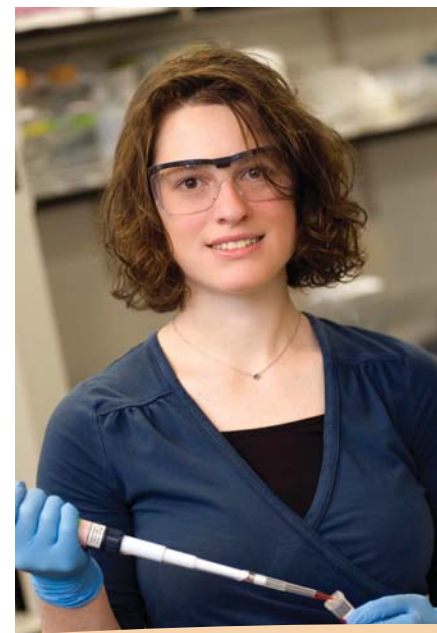
All of the undergraduate majors in the Department of Chemistry and Biochemistry are engaged in scientific research. We feel that the opportunity to discover new facts and phenomena through research is the heart of science. By conducting research, the student can experience the excitement and challenge of modern chemistry and biochemistry first hand. Undergraduate research also gives the student the opportunity to work with faculty members and scientists from other departments at MSU.

The department boasts a great variety of modern research instrumentation and facilities, and is one of the most research-intensive departments on campus. Students can pursue research during the academic year for credit, and stipends are generally provided for students conducting summer research. We encourage undergraduates at all levels to consider getting involved in research, but especially those who have completed at least two years of their chemistry and biochemistry curriculum.

The Department of Chemistry and Biochemistry has a broad reach on campus, administering a degree program as well as classes for students in nursing, engineering, physics, biology, pre-medicine and other disciplines. At any given time, 1,000 undergraduates are enrolled in the various classes we offer, with about 100 of those students pursuing one of our three undergraduate majors.

Our degree program – certified by the American Chemical Society – is diverse and flexible, allowing students to tailor studies to their interests. All coursework is career- and employment-directed, preparing students for various careers in industry, teaching and research.

Janice Lucon received a 2009 National Science Foundation Graduate Fellowship. Photo by Kelly Gorham, MSU News.



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There are a multitude of careers and areas in which job opportunities are available, including:

- Agricultural chemistry
- Consulting
- Organic chemistry
- Information science
- Analytical chemistry
- Consumer products
- Physical chemistry
- Computational chemistry
- Biochemistry
- Environmental chemistry
- Polymer chemistry
- Government, law or medicine
- Biotechnology
- Food & flavor chemistry
- Pulp & paper chemistry
- Technical services
- Catalysis
- Forensic chemistry
- Research & development management
- Technology transfer
- Chemical education
- Geochemistry
- Science writing
- Primary school teaching
- Chemical engineering
- Hazardous waste management
- Textile chemistry
- Secondary school teaching
- Chemical information
- Inorganic chemistry
- Water chemistry
- Two-year college teaching
- Chemical sales & marketing
- Materials science
- Chemical technicians
- Four-year college teaching
- Chemical technology
- Medicinal chemistry
- Business or plant management
- University teaching
- Colloid & surface chemistry
- Oil & petroleum chemistry
- Business development

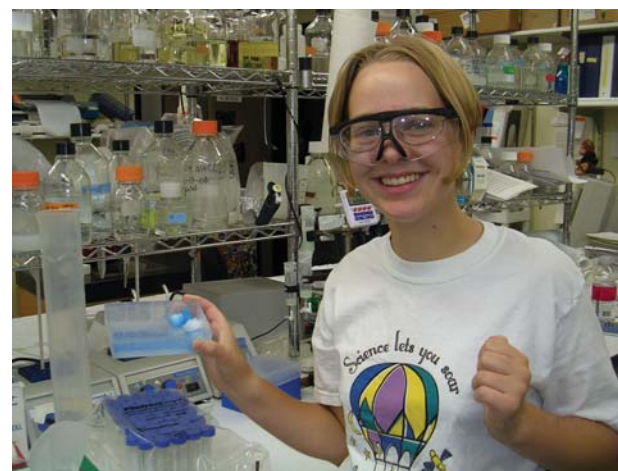
Many of our students also enroll in graduate school or professional school (dental and medical).

Chemistry, Professional Option

This option includes a core of chemistry courses including organic, inorganic, analytical, and physical chemistry and biochemistry. Supporting math and physics electives are also required. The chemistry option is designed to prepare students for careers in chemistry, biochemistry, or other related fields such as medicine, patent law, chemical business (and marketing) or science writing. Chemists are in high demand in industrial, government and academic laboratories. Students electing to take the chemistry option will be well prepared both for advanced graduate study (including medical school) and for immediate employment in the chemical industry (including the biotechnology and pharmaceutical industries), government or business.

Biochemistry Option

This option includes a core of chemistry, biochemistry, and biology courses for the student interested in the molecular nature of biological materials and life processes. A choice of biological science electives will allow the students to prepare for careers in plant, animal, or microbial biochemistry or in medicine. Trained biochemical scientists are much in demand for research and teaching in universities, and for research and development work in chemical, pharmaceutical and biotechnology industries, medicinal laboratories, and in state and federal government. Students who complete the curriculum satisfactorily will be prepared to assume responsible, professional positions or undertake graduate level work in the life sciences, including medical school.



Molly Rappe does research as a participant in the summer NSF Research Experience for Undergraduates Program. Photo courtesy of the Department of Chemistry & Biochemistry.

Chemistry, Teaching Option

This option is designed to prepare prospective teachers of chemistry at the secondary level. It provides a thorough background in the basic fields of chemistry and an acquaintance with the more relevant aspects of chemistry in society, which are essential to the practicing chemistry teacher.

Left, Professor Martin Lawrence and graduate student Anoop Sendamarai in the X-ray Crystallography Facility. Photo by Kelly Gorham, MSU News. Right, The new Chemistry and Biochemistry Building opened in the 2007-2008 academic year.



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