The Department of Chemistry and Biochemistry’s undergraduate degree programs are 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. Student have the opportunity to learn in modern, state-of-the-art teaching labs using the latest, cutting-edge equipment and instrumentation.

PROGRAM DESCRIPTION

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, 2,700 undergraduates are enrolled in the various classes we offer, with about 130 of those students pursuing a degree in chemistry or biochemistry.

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

The Department of Chemistry and Biochemistry requires all of its upperclassmen to conduct research, but encourages undergraduates at all levels to get involved in research. We feel that the opportunity to discover new facts and phenomena through research is the heart of science. By conducting research, students can experience the excitement and challenge of modern chemistry and biochemistry first hand. Undergraduate research also gives students the opportunity to work with a faculty member and scientists from other departments at MSU.

The department has a great variety of modern equipment 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.

Each spring, our undergraduates participate in an Undergraduate Poster Symposium. Twenty to 25 students generally present posters describing their research projects. Departmental faculty and many administrators, often including the president, provost and dean, attend the event.

In the last 10 years, nine of our majors have received the prestigious Goldwater Scholarship.
Options within Major
- Biochemistry
- Chemistry, Professional
- Chemistry, Teaching

Specialized Areas of Study/Minors
- Biochemistry
- Chemistry, Professional
- Astrobiology

What can I do with a degree in Chemistry and Biochemistry?
- Agricultural scientist
- Anesthesiologist
- Biochemist
- Biomedical engineer
- Brewery laboratory assistant
- Chemical engineer
- Chemist
- Clinical research specialist
- College professor
- Cooperative Extension agent
- Crime lab analyst
- Cytologist
- Dairy technologist
- Dentist
- Environmental health specialist
- Food scientist/technologist
- Forensic chemist
- Geneticist
- Geochemist
- Hydrogeologist
- Industrial hygienist
- Laboratory supervisor
- Medical technologist
- Occupational safety specialist
- Oceanographer
- Optometrist
- Patent agent
- Patent attorney
- Perfumer
- Pharmaceutical sales representative
- Pharmacologist
- Physician
- Process development specialist
- Product development manager
- Quality control inspector
- Quality control manager
- Radiologist
- Regulatory affairs specialist
- Research & development specialist
- Science laboratory technician
- Science teacher
- Soil scientist
- Specification writer
- Teacher
- Technical writer
- Toxicologist
- Veterinarian
- Water purification chemist
- Water scientist

CURRICULUM OPTIONS IN CHEMISTRY & BIOCHEMISTRY

Biochemistry Option
This option includes a core of chemistry, biochemistry and biology courses for students interested in the molecular nature of biological materials and life processes. A choice of biological science electives in areas such as immunology, microbiology, veterinary molecular biology and environmental science prepares students 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.

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.

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. For this option, which also prepares students for medical, dental, veterinary or graduate schools, supporting education courses are also required.

For additional information, contact:
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Three chemistry majors received Goldwater Scholarships in 2015.

Gaines Hall provides modern chemistry teaching labs.