

Additional information may be obtained from:
University of Missouri–St. Louis
Office of Admissions
1 University Blvd.
St. Louis, Missouri 63121-4400
314-516-5451
Toll-free: 888-GO-2-UMSL
Career Services: 314-516-5111
Biochemistry and Biotechnology Program: 314-516-6228
umsl.edu-biotech

UMSL Biochemistry and Biotechnology

Why UMSL?

The University of Missouri–St. Louis is one of the few institutions across the country that offers degrees in Biochemistry and Biotechnology. This degree program is offered jointly by the Department of Biology and the Department of Chemistry and Biochemistry. The Biochemistry and Biotechnology degrees provide students with a solid foundation in both chemistry and biology, as well as in-depth specialization in the rapidly growing fields of biochemistry, molecular biology and biotechnology. Courses are offered both in the day and the evenings, to accommodate the schedules of working students. Majors are assigned individual faculty advisors to meet with each semester for academic and career guidance. Faculty members in this program are not only dedicated teachers, but are involved in cutting-edge research in areas such as biochemistry, genetics, molecular biology and cell biology. Students are encouraged to gain undergraduate research experience in the laboratory of a faculty member of the program.

Career Outlook

Biochemistry and biotechnology are integral components of life science research and technology, which will continue to develop and grow through the 21st century. The St. Louis region has long been a major center for agricultural and medical research and development, and in the past decade it has become a world-class leader in the plant and life science industries. A degree in Biochemistry and Biotechnology will provide the students with the training they need to become part of this exciting field, from working for a large pharmaceutical company, to working for a small start-up biotechnology company, to doing basic research at a university or non-profit organization, to entering professional or graduate degree programs, etc.

Degrees and Areas of Concentration

The Biochemistry and Biotechnology Program provides academic programs leading to the undergraduate BS degree or the graduate MS degree in Biochemistry and Biotechnology. These degrees are offered in cooperation with the Department of Biology and the Department of Chemistry and Biochemistry.

Undergraduate Studies

General Education Requirements

Students must satisfy the university and college general education requirements. Required courses in the program may be used to meet the university's science and mathematics area requirements. There is no foreign language requirement.

Degree Requirements

Bachelor of Science in Biochemistry and Biotechnology

1. Core courses:

The following courses, or their equivalents, are required.

Biology Core

BIOL 1811, Introductory Biology: From Molecules to Organisms
BIOL 2012, Genetics
BIOL 2013, Genetics Laboratory
BIOL 2482, Microbiology
BIOL 2483, Microbiology Laboratory
BIOL 3622, Cell Biology
BIOL 4602, Molecular Biology

Chemistry Core

CHEM 1111, Introductory Chemistry I
CHEM 1121, Introductory Chemistry II
CHEM 2223, Quantitative Analysis
CHEM 2612, Organic Chemistry I
CHEM 2622, Organic Chemistry II
CHEM 2633, Organic Chemistry Laboratory
CHEM 3302, Physical Chemistry for Life Sciences

Biochemistry and Biotechnology Core

BIOL 4614, Biotechnology Laboratory I
BIOL 4712 or Chem 4712, Biochemistry
BIOL 4713, Techniques in Biochemistry or CHEM 4733, Biochemistry Laboratory

Mathematics and Physics Core

MATH 1030, College Algebra
MATH 1035, Trigonometry
MATH 1100, Basic Calculus or MATH 1800, Analytical Geometry and Calculus
PHYS 1011, Basic Physics I
PHYS 1012, Basic Physics II

2. Elective Courses:

Three of the following elective courses are required (a minimum of 9 credit hours).

BIOL 4612, Molecular Genetics of Bacteria
BIOL 4615, Biotechnology Laboratory II
BIOL 4622 Molecular Cell Biology
BIOL 4632, Nucleic Acid Structure and Function
CHEM 4722, Advanced Biochemistry
CHEM 4764, Interdisciplinary Topics in Biochemistry
CHEM 4772, Physical Biochemistry