

Choose
UMSL

And your major.

Chemistry BS

with an emphasis in Biochemistry

The St. Louis metropolitan area has long been a major center for industrial chemistry, and in the past decade it has also become vibrant in life sciences research and development. A bachelor's degree in chemistry provides a student with the professional training needed to contribute to this dynamic industry. The B.S. degree is THE professional degree in chemistry, and students who earn the B.S. degree are well prepared for a career in the chemical industry, graduate work in the chemical sciences, medicine, business or law. The department provides opportunities for undergraduates to become involved in ongoing research projects.

Career Outlook

Graduates who complete this degree are especially competitive in the biochemical sciences where a strong chemistry background is essential. Our alumni are eagerly sought by large local biotechnology companies like Millipore Sigma, Bayer (formerly Monsanto) and Pfizer and by pharmaceutical and startup companies where they have led research and development efforts.

They also are very well prepared for medical and other professional schools. Institutions who have accepted our graduates include many top 20 graduate programs.

Future Career Options

- Drug Discovery
- Fermentation and Brewing
- Bioprocess Biochemist
- Lab Chemist
- Research Associate
- Enzyme Chemist
- Medical Technologist
- Research Analyst
- Clinical Laboratory Scientist
- Quality Control Chemist
- Formulation Scientist

Skills developed by degree completion

- Understand essential principles of the foundational areas of chemistry and apply them to solve chemical problems
- Employ investigative and quantitative methods for chemistry research
- Critically evaluate existing scientific studies
- Design studies to test hypotheses addressing unsolved problems in chemistry
- Know scientific software, and statistical and regression analysis
- Perform and document laboratory experiments
- Work independently or as part of a small team
- Identify the need for, gather and analyze information

Successful alumni have gone on to fulfill many of the opportunities above. Additional possibilities are taken from the Bureau of Labor Statistics. Contact an advisor to discuss additional future career options.

4-YEAR ACADEMIC MAP

Bachelor of Science in Chemistry

Emphasis in Biochemistry

*This map assumes math placement into MATH 1800, Calculus I.

Year

1

FALL SEMESTER (15 credit hours)

CHEM 1000: Chemistry: The Central Science (1)
CHEM 1111: Introductory Chemistry I (5)
ENGL 1100: First-Year Writing (3)
MATH 1035: Trigonometry (2)
GEN ED CORE: US History & Government (3)
INTDSC 1003: University Studies (1)

SPRING SEMESTER (16 credit hours)

CHEM 1121: Introductory Chemistry II (5)
MATH 1800: Analytic Geometry and Calculus I (5)
GEN ED CORE: Communications Proficiency (3)
GEN ED EXPLORE: Social Sciences (3)

Year

2

FALL SEMESTER (17 credit hours)

CHEM 2223: Quantitative Analysis (3)
CHEM 2612: Organic Chemistry I (3)
MATH 1900: Analytic Geometry and Calculus II (5)
GEN ED EXPLORE: Humanities & Fine Arts (3)
GEN ED EXPLORE: Social Sciences (3)

SPRING SEMESTER (15 credit hours)

CHEM 2622: Organic Chemistry II (3)
CHEM 2633: Organic Chemistry Laboratory (2)
PHYSICS 2111: Physics: Mechanics and Heat (4)
PHYSICS 2111L: Physics: Mechanics and Heat Laboratory (1)
MATH 2000: Analytic Geometry and Calculus III (5)

Year

3

FALL SEMESTER (17 credit hours)

CHEM 3312: Physical Chemistry I (3)
CHEM 4712: Biochemistry (3)
CHEM 4733: Biochemistry Laboratory (2)
CHEM 3412: Basic Inorganic Chemistry (3)
GEN ED EXPLORE: Humanities & Fine Arts (3)
Cultural Diversity (3)

SPRING SEMESTER (13 credit hours)

CHEM 3322: Physical Chemistry II (3)
CHEM 3333: Physical Chemistry Laboratory I (2)
PHYSICS 2112: Electricity, Magnetism, and Optics (4)
PHYSICS 2112L: Electricity, Magnetism, and Optics Laboratory (1)
ENGL 3160: Writing in the Sciences (3)

Year

4

FALL SEMESTER (15 credit hours)

BIOL 1831: Introductory Biology: From Molecules to Organisms (5)
CHEM 3302: Introduction to Chemical Literature (1)
CHEM 3643: Advanced Organic Lab (2)
CHEM 3905: Research (1)
CHEM 4212: Instrumental Analysis (3)
GEN ED EXPLORE: Humanities & Fine Arts (3)

SPRING SEMESTER (16 credit hours)

BIOL 2012: Genetics (3)
CHEM 3905: Research (2)
CHEM 4233: Instrumental Analysis Laboratory (2)
CHEM 4612: Introduction to Macro-, Supramolecular, Nanoscale (1)
CHEM 4897: Seminar (2)
CHEM 4722: Advanced Biochemistry (3)
GEN ED EXPLORE: Social Sciences (3)



2020-2021 4-YEAR ACADEMIC MAP

This is a sample academic map for the courses to take each academic semester/session. **This map is not a substitute for academic advisement.** Contact your advisor when making final selections.



1 – University Studies

is required for all first-year students and those with less than 24 credit hours.



– Milestone courses

should be taken in the order shown to ensure you stay on a timely and accurate path toward graduation.



– Summer and Intersession courses Don't forget that summers and winter breaks are a way to fast-track your route to degree completion – and lighten your load during fall and spring!



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an UMSL Triton?
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Degree completed!