



Chemistry BS

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 Bachelor of Science degree is THE professional degree in chemistry, and students who earn the degree are well prepared for a career in the chemical industry, graduate work in the chemical sciences, health sciences, medicine, business, or law. The department provides opportunities for undergraduates to become involved in ongoing research projects.

Career Outlook

Our graduates are heavily recruited by the chemical and life sciences industry. Our alumni have led innovation at large companies in the St. Louis region

Our graduates are regularly accepted into many of the top 20 chemistry graduate programs and into medical or dental schools. Still, others have forged their own way in business and law. This breadth reflects the value of chemistry training in a wide array of professional settings.

Future Career Options

- Applied Research and Product Development
- Chemical Engineering
- Chemical Technology
- Cheminformatics
- Crystallography
- Dyes, Pigments, and Inks
- Industrial Management
- Project Management
- Research and Development

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
- 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.

2024-2025 4-YEAR ACADEMIC MAP

IT
STARTS
RIGHT
NOW

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.



UNIVERSITY STUDIES

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



MILESTONE COURSES

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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admissions.umsl.edu

Bachelor of Science in Chemistry*

Year
1

FALL SEMESTER (15 credit hours)

CHEM 1000: Chemistry: The Central Science (1)
CHEM 1111: Introductory Chemistry (5)
ENGL 1100: First-Year Writing (3)
MATH 1035: Trigonometry (2)
GEN ED CORE: US History and 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: Communication 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 and 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)
MATH 2000: Analytic Geometry and Calculus III (5)
PHYSICS 2111: Physics: Mechanics and Heat (3)
PHYSICS 2111L: Physics: Mechanics and Heat Laboratory (1)

Year
3

FALL SEMESTER (16 credit hours)

CHEM 3022: Introduction to Chemical Literature (1)
CHEM 3312: Physical Chemistry I (3)
CHEM 3412: Basic Inorganic Chemistry (3)
CHEM 4712: Biochemistry (3)
GEN ED EXPLORE: Humanities and Fine Arts (3)
Cultural Diversity Requirement (3)

SPRING SEMESTER (16 credit hours)

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

Year
4

FALL SEMESTER (14 credit hours)

CHEM 3643: Advanced Chemistry Laboratory (2)
CHEM 3905: Research (1)
CHEM 4212: Instrumental Analysis (3)
CHEM 4343: Physical Chemistry Laboratory (3)
CHEM 4412: Advanced Inorganic Chemistry (3)
GEN ED EXPLORE: Humanities and Fine Arts (3)

SPRING SEMESTER (12 credit hours)

CHEM 3905: Research (1)
CHEM 4233: Instrumental Analysis Laboratory (2)
CHEM 4433: Inorganic Chemistry Laboratory (2)
CHEM 4662: Introduction to Macro-, Supramolecular, Nanoscale (1)
CHEM 4987: Seminar (2)
Elective (3)
Elective (1)

* assumes math placement into MATH 1035: Trigonometry

Check once completed

