

CHEMISTRY/BIOCHEMISTRY— CHEMISTRY MAJOR, BACHELOR OF SCIENCE (BS)

This major program provides the normal preparation in chemistry for students planning employment as chemists and considerable chemical background in preparation for careers outside chemistry. It is appropriate for some students who plan to enter professional schools such as dentistry, or public and environmental health.

Note: a computer programming course is strongly recommended—see your chemistry/biochemistry advisor.

Grade Requirements: due to the cumulative nature of chemistry courses, the department strongly recommends that students receive a grade \geq C in all prerequisite chemistry courses.

Required Courses

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| CHEM 171 & 171L | GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I | 15 |
| CHEM 172 & CHEM 172L | and GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II | |
| CHEM 173 & CHEM 173L | and GENERAL CHEMISTRY III and GENERAL CHEMISTRY LABORATORY III | |
| CHEM 304 | QUANTITATIVE ANALYSIS | 6 |
| CHEM 319 | MODERN INORGANIC CHEMISTRY | 4 |
| CHEM 351 | ORGANIC CHEMISTRY | 4 |
| CHEM 352 | ORGANIC CHEMISTRY | 4 |
| CHEM 353 | ORGANIC CHEMISTRY | 3 |
| CHEM 372 | ORGANIC CHEM LABORATORY I | 3 |
| CHEM 373 | ORGANIC CHEM LABORATORY II | 3 |
| CHEM 421 | PHYSICAL CHEMISTRY | 4 |
| CHEM 422 | PHYSICAL CHEMISTRY | 4 |
| CHEM 423 | PHYSICAL CHEMISTRY | 3 |
| CHEM 431 | PHYSICAL CHEMISTRY LABORATORY | 1 |
| CHEM 432 | PHYSICAL CHEMISTRY LABORATORY | 2 |
| CHEM 433 | PHYSICAL CHEMISTRY LABORATORY | 2 |
| CHEM 499 | DIRECTED STUDY (variable credit course) | 1-10 |

Required Supporting Courses

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| MATH/HONS 161 | CALCULUS I | 5 |
| MATH 162 | CALCULUS II | 5 |
| MATH 163 | CALCULUS III | 5 |
| PHYS 151 | GENERAL PHYSICS I | 4 |
| PHYS 152 | GENERAL PHYSICS II | 4 |
| PHYS 153 | GENERAL PHYSICS III | 4 |
| PHYS 161 | MECHANICS LABORATORY | 1 |
| PHYS 162 | HEAT AND OPTICS LABORATORY | 1 |
| PHYS 163 | ELECTRONICS LABORATORY I | 1 |

Electives—choose 300- 400-level CHEM courses (exclusive of CHEM 390)—see your chemistry/biochemistry advisor 10

Required Senior Capstone

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| CHEM 491 | SENIOR THESIS | 4-6 |
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or CHEM 490 ADVANCED INORGANIC CHEMISTRY OR SENIOR CAPSTONE

Total Credits 103-114

University Competencies and Proficiencies

English (<http://catalog.ewu.edu/undergraduate-degree/#newitemtext>)
Quantitative and Symbolic Reasoning (<http://catalog.ewu.edu/undergraduate-degree/#mathcomproficiencytext>)
Placement and Clearance Exams (<http://catalog.ewu.edu/undergraduate-degree/#placement/>)
Prior Learning/Sources of Credit AP, CLEP, IB (<http://catalog.ewu.edu/prior-learning/>)

General Education Requirements (<http://catalog.ewu.edu/undergraduate-degree/#generaleducationrequirementsger>) (GER)

- Minimum Credits—180 cumulative credit hours
 - 60 upper-division credits (300 level or above)
 - 45 credits in residence (attendance) at Eastern, with at least 15 upper-division credits in major in residence at Eastern
- Minimum Cumulative GPA \geq 2.0

Breadth Area Core Requirements (<http://catalog.ewu.edu/undergraduate-degree/#generaleducationcorerequirementsgecr>) (BACR)

Humanities and Arts (<http://catalog.ewu.edu/undergraduate-degree/#humanitiesandfineartsgecr>)
Natural Sciences (<http://catalog.ewu.edu/undergraduate-degree/#naturalsciencesgecr>)
Social Sciences (<http://catalog.ewu.edu/undergraduate-degree/#socialsciencesgecr>)

University Graduation Requirements (<http://catalog.ewu.edu/undergraduate-degree/#universitygraduationrequirementsugr>) (UGR)

Diversity Course List (<http://catalog.ewu.edu/undergraduate-degree/#cultureandgenderdiversityintheuslisttext>)
Foreign Language (<http://catalog.ewu.edu/undergraduate-degree/#foreignlanguageugr>) (for Bachelor of Arts)
Global Studies Course List (<http://catalog.ewu.edu/undergraduate-degree/#internationalstudiesrequirementtext>)
Minor or Certificate (<http://catalog.ewu.edu/undergraduate-degree/#majorminororcertificateugr>)
Senior Capstone Course List (<http://catalog.ewu.edu/undergraduate-degree/#capstonecourselisttext>)

All admitted students must officially Declare a Major (<https://inside.ewu.edu/center-for-academic-advising-and-retention/academic-planning-tools/declare-your-major/>) by the time they reach 90 credits (junior standing).

Application for Graduation (use EagleNET (<https://inside.ewu.edu/eaglenet/>)) must be made at least two terms in advance of the term you expect to graduate (undergraduate and post-baccalaureate).

Use the Catalog Archives (<https://catalog.ewu.edu/archives/>) to determine two important catalog years (<http://catalog.ewu.edu/undergraduate-degree/#activecatalogruletext>).

SOAR (<https://soar.ewu.edu/selfservice/general/home.html>) calculates based on these two catalog years.

1. The catalog *in effect at the student's first term* of current matriculation is used to determine **BACR** (Breadth Area Credit Requirements) **and** **UGR** (Undergraduate Graduation Requirements).
2. The catalog *in effect at the time the student declares a major or minor* is used to determine the program requirements.

Students who successfully earn a BS in Chemistry/Biochemistry from EWU should be able to do the following:

- demonstrate a broad-based knowledge of major concepts in the areas of inorganic, organic, analytical and physical chemistry;
- demonstrate sufficient preparation in chemistry to successfully compete in a graduate or professional program or to realize employment in a chemistry- or biochemistry-related career;
- demonstrate a capacity to use modern instrumentation and classical techniques for the analysis and/or separation of chemicals and an ability to interpret data;
- demonstrate effective oral and written communication skills and critical thinking skills as related to the field of chemistry;
- demonstrate knowledge of safe practices in the handling, usage and disposal of chemicals.