

CHEMISTRY/BIOCHEMISTRY MAJOR WITH FORENSIC SCIENCE OPTION, BACHELOR OF SCIENCE (BS)

The forensic science option prepares students for entry-level positions in state and federal forensic science labs as well as for graduate and professional schools.

Major Declaration Requirements

Students must complete 45 hours of specified core courses with a combined minimum GPA ≥ 3.0 before being eligible to declare the forensic major (see note below).

It is assumed that the student will enter the program ready to take MATH 161.

For all internships with law enforcement agencies, students will be required to pass a thorough background check. Competitive internships at regional forensic labs are integrated into the curriculum along with research and independent study.

This option will require more than 12 terms (or 4 years) to complete at an average of 15 credits per term.

Note: these core courses are to be completed before formal acceptance into the forensics major and enrollment in the forensics science internship course: BIOL 171, BIOL 172, CHEM 140, CHEM 171, CHEM 171L, CHEM 172, CHEM 172L, CHEM 173, CHEM 173L, CHEM 304, CHEM 304L, PHYS 151.

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 Chemistry Courses

CHEM 140	CRIMINALISTICS AND FORENSIC CHEMISTRY	5
CHEM 171 & 171L & CHEM 172 & CHEM 172L & CHEM 173 & CHEM 173L	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I and GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II and GENERAL CHEMISTRY III and GENERAL CHEMISTRY LABORATORY III	15
CHEM 304 & 304L	QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB	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 CHEMISTRY LABORATORY I	3
CHEM 373	ORGANIC CHEM LABORATORY II	3
CHEM 420	INSTRUMENTAL ANALYSIS	5
CHEM 421	PHYSICAL CHEMISTRY	4
CHEM 422	PHYSICAL CHEMISTRY	4
CHEM 431	PHYSICAL CHEMISTRY LABORATORY	1
CHEM 445	TOPICS IN FORENSIC CHEMISTRY	5
CHEM 450	ADVANCED FORENSIC CHEMISTRY	5

CHEM 480	BIOCHEMISTRY	5
CHEM 495 or CHEM 399 or CHEM 499	INTERNSHIP DIRECTED STUDY DIRECTED STUDY	4

Required Supporting Courses

BIOL 171	BIOLOGY I	5
BIOL 172	BIOLOGY II	5
BIOL 173	BIOLOGY III	5
BIOL 310	FUNDAMENTALS OF GENETICS	5
BIOL 438	MOLECULAR BIOLOGY	5
CRIM 300	INTRODUCTION TO THE CRIMINAL JUSTICE SYSTEM	5
MATH/HONS 161	CALCULUS I	5
MATH 162	CALCULUS II	5
MATH 163	CALCULUS III	5
MATH 380	ELEMENTARY PROBABILITY AND STATISTICS	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

Required Senior Capstone

CHEM 491	SENIOR THESIS (variable credit—must be taken for 5 credits)	5
----------	---	---

Total Credits **150**

Suggested Supporting Courses

BIOL 301	MICROBIOLOGY	5
CMST 201	PUBLIC SPEAKING	5
CRIM 304	FORENSIC INQUIRY	5
POLI 306	BASIC CONCEPTS OF CRIMINAL LAW	5
TCOM 205	INTRODUCTION TO TECHNICAL COMMUNICATION	5

Plan of Study

The following plan of study is for a student with zero credits. Individual students may have different factors such as: credit through transfer work, Advanced Placement, Running Start, or any other type of college-level coursework that requires an individual plan.

Courses could be offered in different terms, checking the academic schedule is paramount in keeping an individual plan current. **Students should connect with an advisor to ensure they are on track to graduate.**

All Undergraduate students are required to meet the Undergraduate Degree Requirements (<http://catalog.ewu.edu/undergraduate-degree/>).

First Year			
Fall Quarter	Credits	Winter Quarter	Credits
CHEM 171 & 171L (Natural Science BACR 1)	5	CHEM 172 & 172L (Natural Science BACR 2)	5
MATH 161	5	ENGL 101	5
Humanities & Arts BACR 1 ¹	5	MATH 162	5
	15		15

Spring Quarter	Credits
CHEM 173 & 173L	5
ENGL 201	5
MATH 163	5
	15

Second Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
BIOL 171	5	BIOL 172	5	BIOL 173	5
MATH 380	5	CHEM 140	5	PHYS 153 & PHYS 163	5
PHYS 151 & PHYS 161	5	PHYS 152 & PHYS 162	5	Social Science BACR 1 ¹	5
	15		15		15

Third Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
BIOL 310	5	CHEM 304 & 304L	6	CHEM 353	3
CHEM 351	4	CHEM 319	4	CHEM 373	3
Humanities & Arts BACR 2 ¹	5	CHEM 352	4	CHEM 450	5
		CHEM 372	3	CHEM 495, 399, or 499	4
	14		17		15

Fourth Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
BIOL 438	5	CHEM 422	4	CHEM 420	5
CHEM 421	4	CHEM 491 (Senior Capstone - graduation requirement)	5	CHEM 445	5
CHEM 431	1	CRIM 300	5	CHEM 480	5
Social Science BACR 2 ¹	5	Diversity - graduation requirement ²	Global Studies - graduation requirement ²		
	15		14		15

Total Credits 180

¹ University Graduation Requirements (UGR) and Breadth Area Course Requirements (BACR) courses may be less than 5 credits and additional credits may be required to reach the required 180 total credits needed to graduate. Students should connect with an advisor to ensure they are on track to graduate.

² This major option will require more than 12 terms (or 4 years) to complete at an average of 15 credits per term.

University Competencies and Proficiencies

English (<http://catalog.ewu.edu/undergraduate-degree/#newitemtext>)

Quantitative and Symbolic Reasoning (<http://catalog.ewu.edu/undergraduate-degree/#mathcompproficienciestext>)

Placement and Clearance (<http://catalog.ewu.edu/placement/>)

Prior Learning/Sources of Credit AP, CLEP, IB (<http://catalog.ewu.edu/prior-learning/>)

General Education Requirements (<http://catalog.ewu.edu/undergraduate-degree/#generaleducationrequirementstext>) (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 ≥ 2.0

Breadth Area Core Requirements (BACR)

Humanities and Arts (<http://catalog.ewu.edu/undergraduate-degree/#humanitiesandfineartsgecrttext>)

Natural Sciences (<http://catalog.ewu.edu/undergraduate-degree/#naturalsciencesgecrttext>)

Social Sciences (<http://catalog.ewu.edu/undergraduate-degree/#socialsciencesgecrttext>)

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

Diversity Course List (<http://catalog.ewu.edu/undergraduate-degree/#cultureandgenderdiversityintheuslisttext>)

World Language (<http://catalog.ewu.edu/undergraduate-degree/#worldlanguagetext>) (for Bachelor of Arts)

Global Studies Course List (<http://catalog.ewu.edu/undergraduate-degree/#internationalstudiesrequirementstext>)

Minor or Certificate (<http://catalog.ewu.edu/undergraduate-degree/#majorminororcertificateugrttext>)

Senior Capstone Course List (<http://catalog.ewu.edu/undergraduate-degree/#capstonecourselisttext>)

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 (<http://catalog.ewu.edu/archives/>) to determine two important catalog years.

Requirements in Degree Works (<https://inside.ewu.edu/records-and-registration/degree-works/>) are based on these two catalog years:

- 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).
- The catalog *in effect at the time the student declares a major or minor* is used to determine the program requirements.

Students who earn a BS in Chemistry/Biochemistry with Forensic Science Option from EWU should be able to:

- 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.