BACHELOR OF SCIENCE IN ENVIRONMENTAL CHEMISTRY

Web Site: https://twu.edu/chemistry-biochemistry/undergraduate-programs/

Environmental Chemistry is a study of the roles of chemical species in natural places such as water, air, and soil; the effects of human and biological activities on these roles; and the effects these roles have on human and biological activities.

Marketable Skills

Defined by the Texas Higher Education Coordinating Board's 60x30 Strategic Plan (https://reportcenter.highered.texas.gov/agency-publication/miscellaneous/thecb-60x30-strategic-plan/) as, "Those skills valued by employers that can be applied in a variety of work settings, including interpersonal, cognitive, and applied skills areas. These skills can be either primary or complementary to a major and are acquired by students through education, including curricular, co-curricular, and extracurricular activities."

a. effectively work and communicate with diverse team members.
b. correctly write laboratory reports and papers coupled with presenting their work to their peers, at conferences, or to the general public.
c. exhibit valuable verbal and written communication skills.
d. demonstrate social and personal responsibility with a focus on civic engagement and with laboratory safety as the main priority.
e. evidence excellent problem-solving and critical thinking skills related to chemistry to address other issues and solve other problems.

Admissions

All applicants must meet the general undergraduate admission requirements (https://catalog.twu.edu/undergraduate/admission-information/).

Degree Requirements

Total Semester Credit Hours (SCH): 120

Major: 46 SCH

Program Code: ENVCHEMISTRY.BS; **CIP Code:** 03.0104.00

Texas Core Curriculum

Code	Title	SCHs
ENG 1013	Composition I	3
ENG 1023	Composition II	3
Mathematics		3
Life & Physical Sciences		6
Language, Philosophy, & Culture		3
Creative Arts		3
HIST 1013	History of the United States, 1492-1865	3
HIST 1023	History of the United States, 1865 to the Present	3
POLS 2013	U.S. National Government	3
POLS 2023	Texas Government	3
Social & Behavioral Sciences		3
CAO: Women's Studies		3
CAO: First Year Seminar, Wellness or Mathematics		3
Total SCHs		**42**

Courses Required for Major

Code	Title	SCHs
CHEM 1001	Horizons of Chemistry and Biochemistry I: Career Possibilities	1
CHEM 1101	Horizons of Chemistry and Biochemistry II: Current Applications	1
BIOL 1113 & BIOL 1111	Principles of Biology I and Principles of Biology I Laboratory	4
CHEM 1213 & CHEM 1211	Principles of Chemistry I and Principles of Chemistry Laboratory I	4
CHEM 1223 & CHEM 1221	Principles of Chemistry II and Principles of Chemistry Laboratory II	4
BIOL 1123 & BIOL 1121	Principles of Biology II and Principles of Biology II Laboratory	4
CHEM 2213 & CHEM 2211	Organic Chemistry I and Organic Chemistry Laboratory I	4
CHEM 3223 & CHEM 3221	Organic Chemistry II and Organic Chemistry Laboratory II	4
CHEM 3313	Physical Chemistry for the Life Sciences	3
CHEM 3333 & CHEM 3331	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory	4
CHEM 3633 & CHEM 3632	Biochemistry I and Biochemistry I Laboratory	5
CHEM 3713 & CHEM 3711	Environmental Chemistry I and Environmental Chemistry Laboratory I	4
CHEM 4001	Research Presentations in Chemistry and Biochemistry	1
CHEM 4723	Environmental Chemistry II	3
Total SCHs		**46**

Departmental Requirements

Code	Title	SCHs
MATH 2014	Calculus I	4
MATH 2024	Calculus II	4
PHYS 2153 & PHYS 2151	General Physics I and General Physics Laboratory I	4
PHYS 2163 & PHYS 2161	General Physics II and General Physics Laboratory II	4
Total SCHs		**16**

Electives

Code	Title	SCHs
Choose 16 SCH of coursework not already taken.		16
CHEM 3413 & CHEM 3411	Physical Chemistry I and Physical Chemistry Laboratory I	
CHEM 3423 & CHEM 3421	Physical Chemistry II and Physical Chemistry Laboratory II	
CHEM 3643	Biochemistry II	
CHEM 4513 & CHEM 4511	Inorganic Chemistry and Inorganic Chemistry Laboratory	

CHEM 4983	Undergraduate Research	
CHEM 4991	Senior Thesis	
SCI 3013	Community Conversation in Sustainability	
SCI 3033	Water in a Changing Environment	
SCI 3133	Climate Change: A Human Perspective	
Total SCHs		**16**

Recommended Plan of Study

First Year

Fall		**TCCN**	**SCHs**
CHEM 1001	Horizons of Chemistry and Biochemistry I: Career Possibilities		1
CHEM 1213 & CHEM 1211	Principles of Chemistry I and Principles of Chemistry Laboratory I		4
MATH 2014	Calculus I	MATH 2413	4
UNIV 1231	Learning Frameworks: First-Year Seminar	EDUC 1100, EDUC 1200, EDUC 1300	1
Core			3
CAO Course			3
	SCHs		**16**
Spring		**TCCN**	
CHEM 1101	Horizons of Chemistry and Biochemistry II: Current Applications		1
CHEM 1223 & CHEM 1221	Principles of Chemistry II and Principles of Chemistry Laboratory II		4
MATH 2024	Calculus II	MATH 2414	4
Core			3
CAO Course			3
	SCHs		**15**

Second Year

Fall		**TCCN**	
BIOL 1113 & BIOL 1111	Principles of Biology I and Principles of Biology I Laboratory	BIOL 1406 & BIOL 1106	4
CHEM 2213 & CHEM 2211	Organic Chemistry I and Organic Chemistry Laboratory I	CHEM 2323 & CHEM 2123	4
PHYS 2153 & PHYS 2151	General Physics I and General Physics Laboratory I	PHYS 2325 & PHYS 2125	4
Core			3
	SCHs		**15**
Spring		**TCCN**	
BIOL 1123 & BIOL 1121	Principles of Biology II and Principles of Biology II Laboratory	BIOL 1407 & BIOL 1107	4
CHEM 3223 & CHEM 3221	Organic Chemistry II and Organic Chemistry Laboratory II		4
PHYS 2163 & PHYS 2161	General Physics II and General Physics Laboratory II	PHYS 2326 & PHYS 2126	4
Core			3
	SCHs		**15**

Third Year

Fall		**TCCN**	
CHEM 3633 & CHEM 3632	Biochemistry I and Biochemistry I Laboratory		5
Required Elective			4
Core			3
Core			3
	SCHs		**15**
Spring		**TCCN**	
CHEM 3313	Physical Chemistry for the Life Sciences		3
CHEM 3333 & CHEM 3331	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory		4
CHEM 3713 & CHEM 3711	Environmental Chemistry I and Environmental Chemistry Laboratory I		4
Core			3
Core			3
	SCHs		**17**

Fourth Year

Fall		**TCCN**	
Required CHEM Elective			3
Required Elective			3
Core			3
Elective			4
	SCHs		**13**
Spring		**TCCN**	
CHEM 4001	Research Presentations in Chemistry and Biochemistry		1
CHEM 4723	Environmental Chemistry II		3
Core			3
Elective			3
Elective			4
	SCHs		**14**
	Total SCHs:		**120**