

BACHELOR OF SCIENCE IN CHEMISTRY (ENVIRONMENTAL CHEMISTRY)

Web Site: <https://twu.edu/chemistry-biochemistry/undergraduate-programs/bs-in-chemistry--environmental-chemistry/>

Environmental Chemistry is a study of the roles of chemical species in natural places such as water, air, and soil and the effects of human and biological activities on these roles and the effects these roles have on human and biological activities. The B.S. in Environmental Chemistry is a 120 semester credit hour (SCH) degree program that includes 70 SCH in chemistry and allied fields. Due to its multidisciplinary approach, a degree in Environmental chemistry can lead to a wide variety of jobs in chemical industry, toxicology, environmental health and safety, environmental analysis, and biogeochemistry, to name just a few.

Marketable Skills

Defined by the Texas Higher Education Coordinating Board's 60x30 Strategic Plan (<https://reportcenter.highered.texas.gov/agency-publication/miscellaneous/the60x30-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."

- As a member of an undergraduate teaching lab team and research team, you will learn how to work and communicate with diverse team members.
- By writing laboratory reports, papers, senior theses coupled with presenting your work to your peers, at conferences, or to the general public, you will gain valuable verbal and written communication skills.
- With our departmental focus on civic engagement and laboratory safety as our first priority, you will understand social and personal responsibility.
- Finally, since earning a degree in any field of chemistry naturally requires excellent problem solving and critical thinking skills related to chemistry, these skills can also be used to address other issues and solve other problems.

Admissions

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

Degree Requirements

Total Semester Credit Hours (SCH): 120

Major: 63 SCH

Program Code: CHEMISTRY.BS.ENVR; **CIP Code:** 40.0501.00

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
CHEM 1213 & CHEM 1211	Principles of Chemistry I and Principles of Chemistry Laboratory I	4
CHEM 1223 & CHEM 1121	Principles of Chemistry II and General Chemistry Laboratory II	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 3413 & CHEM 3411	Physical Chemistry I and Physical Chemistry Laboratory I	4
CHEM 3423 & CHEM 3421	Physical Chemistry II and Physical Chemistry Laboratory II	4
CHEM 4513 & CHEM 4511	Inorganic Chemistry and Inorganic Chemistry Laboratory	4
CHEM 4983	Undergraduate Research (may be taken twice)	3
CHEM 4991	Senior Thesis	1
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	Elective	2
Total SCHs			SCHs	16

Departmental Requirements

Code	Title	SCHs
BIOL 1113 & BIOL 1111	Principles of Biology I and Principles of Biology I Laboratory	4
BIOL 1123 & BIOL 1121	Principles of Biology II and Principles of Biology II Laboratory	4
MATH 2014	Calculus I	4
Select 4 SCH from the following		4
SCI 3033	Water in a Changing Environment	
SCI 3133	Climate Change: A Human Perspective	
BIOL 4223 & BIOL 4221	Ecology and Ecology Laboratory	
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
ENG 1013	Composition I	ENGL 1301 3
UNIV 1231	Learning Frameworks: The First Year Experience	EDUC 1100, EDUC 1200, EDUC 1300 1
Wellness CAO		2
SCHs		15

Spring	TCCN	SCHs
MATH 2024	Calculus II	MATH 2414 4
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
ENG 1023	Composition II	ENGL 1302 3
BIOL 1113 & BIOL 1111	Principles of Biology I and Principles of Biology I Laboratory	BIOL 1406 & BIOL 1106 4
SCHs		16

Second Year

Fall	TCCN	SCHs
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
POLS 2013	U.S. National Government Language, Philosophy, and Culture Core	GOVT 2305 3
		3

Spring	TCCN	SCHs
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
POLS 2023	Texas Government	GOVT 2306 3
CHEM 3333 & CHEM 3331	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory	4
SCHs		15

Third Year

Fall	TCCN	SCHs
CHEM 3413 & CHEM 3411	Physical Chemistry I and Physical Chemistry Laboratory I	4
CHEM 3633 & CHEM 3632	Biochemistry I and Biochemistry I Laboratory	5
Social & Behavioral Science Core		3
CHEM 3313	Physical Chemistry for the Life Sciences	3
SCHs		15

Spring	TCCN	SCHs
CHEM 3423 & CHEM 3421	Physical Chemistry II and Physical Chemistry Laboratory II	4
CHEM 3643	Biochemistry II	3
CHEM 3713 & CHEM 3711	Environmental Chemistry I and Environmental Chemistry Laboratory I	4
Multicultural Women's Studies CAO		3
SCHs		14

Fourth Year

Fall	TCCN	SCHs
HIST 1013	History of the United States, 1492-1865	HIST 1301 3
Creative Arts Core		3
CHEM 4513 & CHEM 4511	Inorganic Chemistry and Inorganic Chemistry Laboratory	4
BIOL 1123 & BIOL 1121	Principles of Biology II and Principles of Biology II Laboratory	BIOL 1407 & BIOL 1107 4
CHEM 4983	Undergraduate Research	3
SCHs		17

Spring	TCCN	SCHs
CHEM 4001	Research Presentations in Chemistry and Biochemistry	1
HIST 1023	History of the United States, 1865 to the Present	HIST 1302 3
CHEM 4983	Undergraduate Research	3
CHEM 4991	Senior Thesis	1
Select 4 SCH from the following		4
SCI 3033	Water in a Changing Environment	
SCI 3133	Climate Change: A Human Perspective	

BIOL 4223 Ecology
and Ecology Laboratory
& BIOL 4221

SCHs	12
Total SCHs:	120