

BACHELOR OF SCIENCE IN CHEMISTRY

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

This flexible degree plan combines a liberal arts education with a concentration in chemistry. Our undergraduate chemistry program will allow you to major in chemistry while also pursuing a specialization in an almost unlimited number of other areas, such as business, journalism, biology, mathematics, nutrition, or computer science.

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."

1. As a member of an undergraduate teaching lab team and research team, you will learn how to work and communicate with diverse team members.
2. 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.
3. With our departmental focus on civic engagement and laboratory safety as our first priority, you will understand social and personal responsibility.
4. 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 (<https://catalog.twu.edu/undergraduate/admission-information/>).

Degree Requirements

Total Semester Credit Hours (SCH): 124

Major: 51 SCH

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

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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 1221	Principles of Chemistry II and Principles of 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 3413 & CHEM 3411	Physical Chemistry I and Physical Chemistry Laboratory I	4
CHEM 3333 & CHEM 3331	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory	4
CHEM 3423 & CHEM 3421	Physical Chemistry II and Physical Chemistry Laboratory II	4
CHEM 3633 & CHEM 3632	Biochemistry I and Biochemistry I Laboratory	5
CHEM 3643	Biochemistry II	3
CHEM 3713 & CHEM 3711	Environmental Chemistry I and Environmental Chemistry Laboratory I	4
CHEM 4001	Research Presentations in Chemistry and Biochemistry	1
CHEM 4313 & CHEM 4311	Instrumental Analysis and Instrumental Analysis Laboratory	4
CHEM 4513 & CHEM 4511	Inorganic Chemistry and Inorganic Chemistry Laboratory	4
Total SCHs		51

Departmental Requirements

Code	Title	SCHs
MATH 2014	Calculus I (may be applied from core)	4
MATH 2024	Calculus II	4
PHYS 2153 & PHYS 2151	General Physics I and General Physics Laboratory I (may be applied from core)	4

PHYS 2163 & PHYS 2161	General Physics II and General Physics Laboratory II (may be applied from core)	4
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Total SCHs 16

Electives

Code	Title	SCHs
Choose 15 SCH not already taken		

CHEM 4983	Undergraduate Research	
CHEM 4913	Independent Study	
MATH 3063	Linear Algebra	
MATH 3073	Matrix Methods	
MATH 3104	Calculus III	
MATH 3123	Differential Equations	
MATH 4013	Probability and Statistics	
BIOL 1113 & BIOL 1111	Principles of Biology I and Principles of Biology I Laboratory	
BIOL 1123 & BIOL 1121	Principles of Biology II and Principles of Biology II Laboratory	
BIOL 4223 & BIOL 4221	Ecology and Ecology Laboratory	
BIOL 4813 & BIOL 4811	Molecular and Cellular Biology: Gene Expression and Molecular and Cellular Biology: Gene Expression Laboratory	
BIOL 4823 & BIOL 4821	Molecular and Cellular Biology: Genetics and Inheritance and Molecular and Cellular Biology: Genetics and Inheritance Laboratory	

Total SCHs 15

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 Seminar	EDUC 1100, EDUC 1200, EDUC 1300 1

Wellness/Mathematics CAO 2

SCHs 15

Spring	TCCN	SCHs
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
ENG 1023	Composition II	ENGL 1302 3

Multicultural Women's Studies CAO Core 3

SCHs 15

Second Year

Fall	TCCN
CHEM 2213	Organic Chemistry I
& CHEM 2211	and Organic Chemistry Laboratory I
PHYS 2153	General Physics I
& PHYS 2151	and General Physics Laboratory I
POLS 2013	U.S. National Government Language, Philosophy, and Culture Core
CHEM 2323 & CHEM 2123	4
PHYS 2325 & PHYS 2125	4
GOVT 2305	3

SCHs 14

Spring	TCCN
CHEM 3223	Organic Chemistry II
& CHEM 3221	and Organic Chemistry Laboratory II
PHYS 2163 & PHYS 2161	General Physics II and General Physics Laboratory II
POLS 2023	Texas Government
CHEM 3333 & CHEM 3331	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory
PHYS 2326 & PHYS 2126	4
GOVT 2306	3

SCHs 15

Third Year

Fall	TCCN
CHEM 3413	Physical Chemistry I
& CHEM 3411	and Physical Chemistry Laboratory I
CHEM 3633	Biochemistry I
& CHEM 3632	and Biochemistry I Laboratory
Social & Behavioral Science Core	
CHEM 4313 & CHEM 4311	Instrumental Analysis and Instrumental Analysis Laboratory
PHYS 2326 & PHYS 2126	4
GOVT 2306	3
4	

SCHs 16

Spring	TCCN
CHEM 3423	Physical Chemistry II
& CHEM 3421	and Physical Chemistry Laboratory II
CHEM 3643	Biochemistry II
CHEM 4983	Undergraduate Research
Elective (Global Perspectives course)	
CHEM 3713 & CHEM 3711	Environmental Chemistry I and Environmental Chemistry Laboratory I
PHYS 2326 & PHYS 2126	4

SCHs 17

Fourth Year

Fall	TCCN
CHEM 4983	Undergraduate Research
CHEM 4513 & CHEM 4511	Inorganic Chemistry and Inorganic Chemistry Laboratory
HIST 1013	History of the United States, 1492-1865
Creative Arts Core Course	
Elective	
PHYS 2326 & PHYS 2126	3
4	

SCHs 17

Spring		TCCN	
CHEM 4001	Research Presentations in Chemistry and Biochemistry		1
Elective			4
HIST 1023	History of the United States, 1865 to the Present	HIST 1302	3
Elective			3
Elective			4
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SCHs			15
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Total SCHs:			124