B.S. IN CHEMISTRY/ BIOCHEMISTRY (6-12 PHYSICAL SCIENCE TEACHER CERTIFICATION)

Web Site: https://twu.edu/chemistry-biochemistry/undergraduate-programs/bs-in-chemistrybiochemistry-with-teacher-certification/

Our flexible undergraduate degree plan with teacher certification combines liberal arts study with a chemistry/biochemistry concentration, teacher education coursework, and hands-on student teaching experience. This plan allows you to major in chemistry while also pursuing your teacher certification and a specialization in an almost unlimited number of other areas, such as business, journalism, biology, mathematics, nutrition, or computer science. We offer two options for certification: teacher certification in physical science for grades 6-12, and teacher certification in science for grades 7-12.

Marketable Skills

Defined by the Texas Higher Education Coordinating Board's 60x30 Strategic Plan (http://www.60x30tx.com/) 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."

Degree Skills

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. Writing laboratory reports, papers, senior theses coupled to 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 with laboratory safety as our first priority, you will understand social and personal responsibility.
4. Finally, since earning the 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.

Teacher Certification Skills

1. Appropriately explain the impact of effective planning and communication (within the chosen area of concentration) to relevant internal and external stakeholders in an education or community setting.
2. Identify, select, and implement entry-level instructional plans when serving as an instructor in the school setting.
3. Successfully manage organizational and student behavior when teaching in the school setting.
4. Efficiently and accurately assess student progress and use data to develop and modify instruction for K-12 students.
5. Work effectively and collaboratively with students and families from diverse backgrounds.

Admissions

Teacher Certification

In addition to the general undergraduate admissions requirements (http://catalog.twu.edu/archives/2020-2021/undergraduate/admission-information/), to obtain acceptance into the undergraduate Educator Preparation Program (https://twu.edu/teacher-certification/) (and prior to taking EDUC 3003, EDUC 3482, EDUC 4113, EDUC 4243, and Clinical Student Teaching) students must have:

- A cumulative GPA of 2.75 (includes **all** courses, whether posted to TWU transcript or used on a degree plan. Excludes developmental and repeated courses);
- Completed EDUC 2003 with a C or better;
- Demonstrated basic skills in reading, written communication, and mathematics by meeting the requirements of the Texas Success Initiative;
- Completed the Digital Literacy Pre-assessment;
- Successfully completed a pre-admission departmental interview with an interview panel;
- A minimum of 12 to 15 semester credit hours in the subject-specific content area for the certification sought;
- Completed department application for admission to the Educator Preparation Program;
- Completed a Commitment Contract acknowledging awareness and understanding of the Dispositions Policy and Educators' Code of Ethics;
- Submitted a non-refundable Texas Education Agency Fee; and
- Acknowledged and accepted admission to the Educator Preparation Program.

Please note:

- All accepted students must maintain the admission requirements to remain in the TWU Education Preparation Program.
- Admission requirements are determined by Texas Education Agency policies and are subject to change without notice.
- Students seeking Bilingual certification must meet minimum proficiency in Spanish.
- Students seeking Deaf/Hard of Hearing certification must meet minimum proficiency in sign.

Contact the Office of Educator Preparation Services *(*https://twu.edu/teacher-certification*/) (OEPS) at* copeadvising@twu.edu *or (940) 898-2829 with any questions.*

Degree Requirements

Total Semester Credit Hours (SCH): 121-130

Major: 33 SCH; **Required Minor:** 26 SCH

Program Code: CHEMISTRY.BS 40.0501; **CIP Code:** 40.0501

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 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 3333 & CHEM 3331	Quantitative Chemical Analysis and Quantitative Chemical Analysis Laboratory	4
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 3633 & CHEM 3632	Biochemistry I and Biochemistry I Laboratory	5
Total SCHs		33

Education Minor

Code	Title	SCHs
EDUC 2003	Schools and Society	3
EDUC 3003	Learning Theory and Development	3
EDUC 3482	Teaching Diverse Learners Through Technology Integration	2
EDUC 4113	Design and Implementation of Instruction and Assessment	3
EDUC 4243	Classroom Environment and Management	3
EDUC 4946	Clinical Student Teaching	6
EDSP 4203	Learners with Exceptionalities	3
READ 3013	Literacy and Learning across the Curriculum	3
Total SCHs		26

Departmental Requirements

Code	Title	SCHs
BIOL 4593	Science in the Secondary Classroom	3
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
SCI 1114	Sustainable Physical Science	4
SCI 2103	Introduction to Environmental Chemistry: Global Perspectives	3
SCI 2113	Earth Science: Global Perspectives	3
Total SCHs		29

Recommended Plan of Study

First Year

Fall		TCCN	SCHs
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
HIST 1013	History of the United States, 1492-1865	HIST 1301	3
UNIV 1231	Learning Frameworks: The First Year Experience	EDUC 1100, EDUC 1200, EDUC 1300	1
Wellness/Mathematics CAO Core			2
	SCHs		17
Spring		**TCCN**	
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
HIST 1023	History of the United States, 1865 to the Present	HIST 1302	3
Multicultural Women's Studies Core CAO			3
	SCHs		17

Second Year

Fall		TCCN	
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	GOVT 2305	3
Creative Arts Core			3
Language, Philosophy, & Culture Core			3
	SCHs		17
Spring		**TCCN**	
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

Social/Behavioral Core			3
	SCHs		18
Third Year			
Fall		**TCCN**	
EDUC 2003	Schools and Society	EDUC 1301	3
CHEM 3633 & CHEM 3632	Biochemistry I and Biochemistry I Laboratory		5
CHEM 3413 & CHEM 3411	Physical Chemistry I and Physical Chemistry Laboratory I		4
SCI 1114	Sustainable Physical Science	PHYS 1415	4
	SCHs		16
Spring		**TCCN**	
EDUC 3003	Learning Theory and Development		3
EDUC 3482	Teaching Diverse Learners Through Technology Integration		2
CHEM 3423 & CHEM 3421	Physical Chemistry II and Physical Chemistry Laboratory II		4
SCI 2103	Introduction to Environmental Chemistry: Global Perspectives	ENVR 1401	3
SCI 2113	Earth Science: Global Perspectives	GEOL 1401	3
	SCHs		15
Fourth Year			
Fall		**TCCN**	
EDUC 4113	Design and Implementation of Instruction and Assessment		3
EDUC 4243	Classroom Environment and Management		3
BIOL 4593	Science in the Secondary Classroom		3
EDSP 4203	Learners with Exceptionalities		3
READ 3013	Literacy and Learning across the Curriculum		3
	SCHs		15
Spring		**TCCN**	
EDUC 4946	Clinical Student Teaching		6
	SCHs		6
	Total SCHs:		121