

BACHELOR OF SCIENCE IN BIOLOGY (7-12 LIFE SCIENCE CERTIFICATION)

Web Site: <https://twu.edu/biology/undergraduate-programs/bachelor-of-science-in-biology-with-teacher-certification/>

Science teachers are always in demand! At TWU, you can double your potential for employment by gaining valuable teacher training and certification along with a strong foundation in the biological sciences and marketable lab skills. The Department of Biology is pleased to offer a degree in Biology that also includes the courses and requirements leading to completion of a Texas 7-12 Life Science Teaching Certificate.

This Bachelor of Science degree leading to teacher certification requires a total of 122 semester credit hours. All students pursuing teacher certification must achieve an overall GPA of at least 2.75 prior to enrolling in professional education coursework. Students must earn a grade of C or higher in all required mathematics, science (includes all prefixes), and education courses. The requirements for Biology majors in mathematics, chemistry, and physics must also be met, which means that this program also satisfies most requirements for medical, dental, and other health professions programs. Completion of teacher education requirements will automatically lead to a minor in education.

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. Written and oral communication skills.
2. Demonstrate critical thinking by using logic and reasoning to interpret scientific results.
3. Ability to design and conduct properly controlled experiments.
4. Utilize modern scientific instruments and methods.
5. Work collaboratively as part of a team to perform, analyze, and present research.
6. Ability to understand and comply with laboratory safety guidelines.

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/undergraduate/admission-information/>), to obtain acceptance into the undergraduate Educator Preparation Program (<https://twu.edu/epp/>) (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 higher;
- 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 Professional 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/epp/>) (OEPS) at copeadvising@twu.edu or 940-898-2829 with any questions.

Degree Requirements

Total Semester Credit Hours (SCH): 123

Major: 36 SCH; **Required Minor:** 26 SCH (Education)

Program Code: BIOLOGY.BS; **CIP Code:** 26.0101.00

A minimum grade of C is mandatory in all required courses for Biology majors.

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
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
BIOL 2113 & BIOL 2111	Plant Biology and Plant Biology Laboratory	4
BACT 3113 & BACT 3111	General Microbiology and General Microbiology Laboratory	4
BIOL 4223 & BIOL 4221	Ecology and Ecology Laboratory	4
BIOL 4593	Science in the Secondary Classroom	3
BIOL 4681	Biology Seminar	1
BIOL 4813 & BIOL 4811	Molecular and Cellular Biology: Gene Expression and Molecular and Cellular Biology: Gene Expression Laboratory	4
BIOL 4823 & BIOL 4821	Molecular and Cellular Biology: Genetics and Inheritance and Molecular and Cellular Biology: Genetics and Inheritance Laboratory	4
ZOOL 4243 & ZOOL 4241	Medical Physiology and Medical Physiology Laboratory	4
Total SCHs		36

Departmental Requirements

Code	Title	SCHs
CHEM 1113 & CHEM 1111	General Chemistry I and General Chemistry Laboratory I	4
CHEM 1123 & CHEM 1121	General 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

MATH 1303	Elementary Analysis I (may be applied from core)	3
MATH 1313	Elementary Analysis II (may be applied from core)	3
Choose one of the following		4
PHYS 1133 & PHYS 1131	Principles of Physics I and Principles of Physics Laboratory I (may be applied from core)	
PHYS 2153 & PHYS 2151	General Physics I and General Physics Laboratory I	
Choose one of the following		
PHYS 1143 & PHYS 1141	Principles of Physics II and Principles of Physics Laboratory II (may be applied from core)	
PHYS 2163 & PHYS 2161	General Physics II and General Physics Laboratory II	
Total SCHs		26

Students must satisfy the 3 SCH global perspectives graduation requirement.

Professional Education Studies

Admission to the Educator Preparation Program is required. Students must apply for admission into the Educator Preparation Program prior to enrolling in EDUC 3003/EDUC 3482, EDUC 4113/EDUC 4243, and EDUC 4946. Applications are available from the Office of Educator Preparation Services (<https://twu.edu/teacher-certification/>).

Code	Title	SCHs
Pedagogical and Professional Responsibility		
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
Related Studies in Education		
READ 3013	Literacy and Learning across the Curriculum	3
EDSP 3203	Learners with Exceptionalities	3
Total SCHs		26

Notes:

- EDUC 2003 may be taken at a community college. Check with the Office of Educator Preparation Services (<https://twu.edu/teacher-certification/>) to make sure the course has the equivalent number.
- EDUC 4113 and EDUC 4243 must be taken during the same semester.

Recommended Plan of Study

First Year

Fall	TCCN	SCHs
BIOL 1113 & BIOL 1111	Principles of Biology I and Principles of Biology I Laboratory	BIOL 1406 & BIOL 1106
		4

CHEM 1113 & CHEM 1111	General Chemistry I and General Chemistry Laboratory I	CHEM 1311 & CHEM 1111	4
MATH 1303	Elementary Analysis I	MATH 1314	3
ENG 1013	Composition I	ENGL 1301	3
UNIV 1231	Learning Frameworks: The First Year Experience	EDUC 1100, EDUC 1200, EDUC 1300	1
SCHs			15
Spring		TCCN	
BIOL 1123 & BIOL 1121	Principles of Biology II and Principles of Biology II Laboratory	BIOL 1407 & BIOL 1107	4
CHEM 1123 & CHEM 1121	General Chemistry II and General Chemistry Laboratory II	CHEM 1312 & CHEM 1112	4
MATH 1313	Elementary Analysis II	MATH 1316	3
ENG 1023	Composition II	ENGL 1302	3
Multicultural Women's Studies CAO Core			3
SCHs			17
Second Year			
Fall		TCCN	
BIOL 2113 & BIOL 2111	Plant Biology and Plant Biology Laboratory	BIOL 1411 & BIOL 1111	4
BACT 3113 & BACT 3111	General Microbiology and General Microbiology Laboratory		4
CHEM 2213 & CHEM 2211	Organic Chemistry I and Organic Chemistry Laboratory I	CHEM 2323 & CHEM 2123	4
POLS 2013	U.S. National Government	GOVT 2305	3
EDUC 2003	Schools and Society	EDUC 1301	3
SCHs			18
Spring		TCCN	
BIOL 4223 & BIOL 4221	Ecology and Ecology Laboratory		4
ZOOL 4243 & ZOOL 4241	Medical Physiology and Medical Physiology Laboratory		4
CHEM 3223 & CHEM 3221	Organic Chemistry II and Organic Chemistry Laboratory II		4
POLS 2023	Texas Government	GOVT 2306	3
SCHs			15
Third Year			
Fall		TCCN	
BIOL 4813 & BIOL 4811	Molecular and Cellular Biology: Gene Expression and Molecular and Cellular Biology: Gene Expression Laboratory		4
PHYS 1133 & PHYS 1131	Principles of Physics I and Principles of Physics Laboratory I	PHYS 1301 & PHYS 1101	4
HIST 1013	History of the United States, 1492-1865	HIST 1301	3
Creative Arts Core			3
Language, Philosophy & Culture Core			3
SCHs			17

Spring		TCCN	
BIOL 4823 & BIOL 4821	Molecular and Cellular Biology: Genetics and Inheritance and Molecular and Cellular Biology: Genetics and Inheritance Laboratory		4
BIOL 4681	Biology Seminar		1
PHYS 1143 & PHYS 1141	Principles of Physics II and Principles of Physics Laboratory II	PHYS 1302 & PHYS 1102	4
EDUC 3482	Teaching Diverse Learners Through Technology Integration		2
EDUC 3003	Learning Theory and Development		3
HIST 1023	History of the United States, 1865 to the Present	HIST 1302	3
SCHs			17
Fourth Year			
Fall		TCCN	
BIOL 4593	Science in the Secondary Classroom		3
EDSP 3203	Learners with Exceptionalities		3
EDUC 4113	Design and Implementation of Instruction and Assessment		3
EDUC 4243	Classroom Environment and Management		3
READ 3013	Literacy and Learning across the Curriculum		3
Social/Behavioral Science Core			3
SCHs			18
Spring		TCCN	
EDUC 4946	Clinical Student Teaching		6
SCHs			6
Total SCHs:			123