

# BACHELOR OF SCIENCE IN BIOLOGY

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

Our bachelor's degree in biology is your first step toward an engaging career in the life sciences. During our four-year program, you'll develop a comprehensive understanding of the principles of biology, chemistry, physiology, plant biology, microbiology, molecular biology, and cellular biology. The broad background provided by our bachelor's degree provides excellent preparation for those seeking careers in the industry or government sectors, as well as admission into medical, dental, or veterinary programs.

## 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."

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.

## Admissions

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

## Degree Requirements

**Total Semester Credit Hours (SCH):** 121-122

**Major:** 36 SCH; **Required Minor:** 18 SCH (Chemistry is the recommended minor)

**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
<b>Total SCHs</b>		<b>42</b>

### 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
ZOOL 4243 & ZOOL 4241	Medical Physiology and Medical Physiology Laboratory	4
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
Biology Elective		7
Biology Elective hours must include coursework appropriate for science majors. The following courses are not acceptable electives: BACT 1003/BACT 1001, BIOL 1013, BIOL 1023, BIOL 1033, and BIOL 1223.		
<b>Total SCHs</b>		<b>36</b>

### 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
MATH 1703	Elementary Statistics I (may be applied from core)	3-4
or MATH 2014	Calculus I	
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			4
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		
<b>Electives/Minor</b>			<b>18</b>
Total SCHs			51-52

## Recommended Plan of Study

### First Year

<b>Fall</b>		<b>TCCN</b>	<b>SCHs</b>
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

<b>Spring</b>		<b>TCCN</b>	
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
Elective			2
SCHs			16

### Second Year

<b>Fall</b>		<b>TCCN</b>	
BIOL 2113 & BIOL 2111	Plant Biology and Plant Biology Laboratory	BIOL 1411 & BIOL 1111	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
Choose one of the following:			3-4
MATH 1703	Elementary Statistics I	MATH 1342	
MATH 2014	Calculus I	MATH 2413	
SCHs			14-15

<b>Spring</b>		<b>TCCN</b>	
CHEM 3223 & CHEM 3221	Organic Chemistry II and Organic Chemistry Laboratory II		4
BACT 3113 & BACT 3111	General Microbiology and General Microbiology Laboratory		4
POLS 2023	Texas Government	GOVT 2306	3

Creative Arts Core		3
SCHs		14

### Third Year

<b>Fall</b>		<b>TCCN</b>	
BIOL 4813 & BIOL 4811	Molecular and Cellular Biology: Gene Expression and Molecular and Cellular Biology: Gene Expression Laboratory		4
Minor Elective			3
HIST 1013	History of the United States, 1492-1865	HIST 1301	3
Social/Behavioral Science Core			3
Language, Philosophy & Culture Core			3
SCHs			16

<b>Spring</b>		<b>TCCN</b>	
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
HIST 1023	History of the United States, 1865 to the Present	HIST 1302	3
Multicultural Women's Studies CAO Core			3
General or Minor Elective			3
SCHs			17

### Fourth Year

<b>Fall</b>		<b>TCCN</b>	
Biology Elective			3
PHYS 1133 & PHYS 1131	Principles of Physics I and Principles of Physics Laboratory I	PHYS 1301 & PHYS 1101	4
BIOL 4681	Biology Seminar		1
Upper-level General or Minor Elective			4
Upper-level General or Minor Elective			3
SCHs			15

<b>Spring</b>		<b>TCCN</b>	
Biology Elective			4
PHYS 1143 & PHYS 1141	Principles of Physics II and Principles of Physics Laboratory II	PHYS 1302 & PHYS 1102	4
Upper-level General or Minor Elective			3
Elective (select Global Perspectives course)			3

SCHs			14
Total SCHs:			121-122