

# 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 will develop a comprehensive understanding of the principles of biology, chemistry, physics, physiology, plant biology, microbiology, molecular biology, and cellular biology. The broad background provided by our bachelor's degree offers excellent preparation for those seeking careers in the academic, 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 (<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."

- Written and oral communication skills.
- Demonstrate critical thinking by using logic and reasoning to interpret scientific results.
- Ability to design and conduct properly controlled experiments.
- Utilize modern scientific instruments and methods.
- Work collaboratively as part of a team to perform, analyze, and present research.
- 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:** 39 SCH; **Required Minor:** 18 SCH

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

Lecture and lab must be taken concurrently. 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 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		10
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>31</b>

## 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
Choose one of the following:		4
CHEM 1113 & CHEM 1111	General Chemistry I and General Chemistry Laboratory I	
CHEM 1213 & CHEM 1211	Principles of Chemistry I and Principles of Chemistry Laboratory I	
Choose one of the following:		4
CHEM 1123 & CHEM 1121	General Chemistry II and General Chemistry Laboratory II	
CHEM 1223 & CHEM 1221	Principles of Chemistry II and Principles of Chemistry Laboratory II	
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 or MATH 2014	College Algebra or Calculus I	3-4

MATH 1703	Elementary Statistics I	3
Choose one of the following:		4
PHYS 1133 & PHYS 1131	Principles of Physics I and Principles of Physics Laboratory I	
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	
PHYS 2163 & PHYS 2161	General Physics II and General Physics Laboratory II	
Electives/Minor		18
<b>Total SCHs</b>		<b>56-57</b>

Students must satisfy the 3 SCH global perspectives graduation requirement.

## Recommended Plan of Study

### First Year

Fall	TCCN	SCHs
BIOL 1113 Principles of Biology I & BIOL 1111 and Principles of Biology I Laboratory	BIOL 1406 & BIOL 1106	4
CHEM 1113 General Chemistry I & CHEM 1111 and General Chemistry Laboratory I	CHEM 1311 & CHEM 1111	4
MATH 1303 College Algebra	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
<b>SCHs</b>		<b>15</b>

Spring	TCCN	SCHs
BIOL 1123 Principles of Biology II & BIOL 1121 and Principles of Biology II Laboratory	BIOL 1407 & BIOL 1107	4
CHEM 1123 General Chemistry II & CHEM 1121 and General Chemistry Laboratory II	CHEM 1312 & CHEM 1112	4
ENG 1023 Composition II	ENGL 1302	3
MATH 1703 Elementary Statistics I	MATH 1342	3
Elective		2
<b>SCHs</b>		<b>16</b>

### Second Year

Fall	TCCN	SCHs
BIOL 2113 Plant Biology & BIOL 2111 and Plant Biology Laboratory	BIOL 1411 & BIOL 1111	4
CHEM 2213 Organic Chemistry I & CHEM 2211 and Organic Chemistry Laboratory I	CHEM 2323 & CHEM 2123	4
POLS 2013 U.S. National Government	GOVT 2305	3
Biology Elective		3
<b>SCHs</b>		<b>14</b>

Spring	TCCN	SCHs
CHEM 3223 Organic Chemistry II & CHEM 3221 and Organic Chemistry Laboratory II		4
BACT 3113 General Microbiology & BACT 3111 and General Microbiology Laboratory		4
POLS 2023 Texas Government	GOVT 2306	3
Creative Arts Core		3
<b>SCHs</b>		<b>14</b>

### Third Year

Fall	TCCN	SCHs
BIOL 4813 Molecular and Cellular Biology: Gene & BIOL 4811 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
<b>SCHs</b>		<b>16</b>

Spring	TCCN	SCHs
BIOL 4823 Molecular and Cellular Biology: Genetics and Inheritance & BIOL 4821 and Molecular and Cellular Biology: Genetics and Inheritance Laboratory		4
ZOOL 4243 Medical Physiology & ZOOL 4241 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
<b>SCHs</b>		<b>17</b>

### Fourth Year

Fall	TCCN	SCHs
Biology Elective		3
PHYS 1133 Principles of Physics I & PHYS 1131 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
<b>SCHs</b>		<b>15</b>

Spring	TCCN	SCHs
Biology Elective		4
PHYS 1143 Principles of Physics II & PHYS 1141 and Principles of Physics Laboratory II	PHYS 1302 & PHYS 1102	4
Upper-level General or Minor Elective		3
Elective (select Global Perspectives course)		3
<b>SCHs</b>		<b>14</b>
<b>Total SCHs:</b>		<b>121</b>