

# B.S. BIOLOGY

## OVERVIEW

Biology is a multidisciplinary cutting-edge field encompassing the vast diversity of life from the smallest amino acid to ecosystem dynamics.

Our program includes a diversity of courses that are taught by faculty who are dedicated to quality education through scholarship and research. The breadth of our faculty interests and experiences enable students to specialize their degree in sub-disciplines of biology such as biotechnology, ecology and conservation biology, organismal biology.

## Program Level Student Learning Outcomes

The student will be able to:

- Explain biological concepts across sub disciplines.
- Implement research methodology as it applies across the various biological subdisciplines.
- Critically evaluate scientific research in the biological sciences.
- Demonstrate strong communication skills.

## Program Entry Requirements

Students will be admitted into the Biology major by the faculty once the application criteria are met. To be accepted into the Biology program, students must:

- Have an overall GPA of 2.75 or higher.

## Bachelor of Science Biology - Biotechnology Concentration Program Requirements

Refer to the General Education Core Requirements (<https://catalog.tamuct.edu/undergraduate-information/general-education-core-requirements/>) page for more information on the CORE REQ coursework. The Field of Study (FOS) courses are listed in the footnotes (if applicable). At least 120 credit hours are required for the degree.

Code	Title	Credit Hours
<b>First Year</b>		
Fall		
CORE REQ Communications (010)		3
MATH 2313	Calculus I (CORE REQ (020) <sup>2</sup> )	3
BIOL 1406	Biology for Science Majors I (Lecture + Lab) (CORE REQ (030) <sup>2</sup> )	4
CHEM 1411	General Chemistry I (Lecture + Lab) <sup>2</sup>	4
Spring		
CORE REQ Language, Philosophy, and Culture (040)		3
BIOL 1407	Biology for Science Majors II (Lecture + Lab) (CORE REQ (030) <sup>2</sup> )	4
CORE REQ Social and Behavioral Sciences (080)		3
CORE REQ Creative Arts (050)		3
CHEM 1412	General Chemistry II (CORE REQ (090) <sup>2</sup> )	4
<b>Second Year</b>		
Fall		

CORE REQ Communications (010)		3
CORE REQ American History (060)		3
CORE REQ Government/Political Science (070)		3
CHEM 2423	Organic Chemistry I (Lecture + Lab) <sup>2</sup>	4
Spring		
BIOL 2421	Microbiology for Science Majors <sup>2</sup>	4
CORE REQ American History (060)		3
CORE REQ Government/Political Science (070)		3
PHYS 1401	College Physics I (Lecture + Lab) <sup>2</sup>	4
CHEM 2425	Organic Chemistry II (Lecture + Lab) <sup>2</sup>	4
<b>Third Year</b>		
Fall		
BIOL 3452	Principles of Genetics <sup>2</sup>	4
CHEM 4430	Biochemistry I <sup>2</sup>	4
CHEM 3415	Analytical Chemistry <sup>2</sup>	4
MATH 3350	Principles of Bio-Statistics <sup>2</sup>	3
Spring		
BIOL 4470	Cell Biology <sup>2</sup>	4
CHEM 4415	Instrumental Analysis <sup>2</sup>	4
BIOL 3380	Research Methods <sup>2</sup>	3
Any Level Elective		3
<b>Fourth Year</b>		
Fall		
BIOL 4471	Molecular Biology <sup>2</sup>	4
BIOL 4475	Proteomics <sup>2</sup>	4
BIOL 4380	Evolution <sup>2</sup>	3
Any Level Elective		3
Spring		
BIOL 4451	Bioinformatics <sup>2</sup>	4
BIOL 4395	Biology Capstone <sup>2</sup>	3
Elective - Faculty Approved		4
Elective - Faculty Approved		4
<b>Total Credit Hours</b>		<b>120</b>

<sup>1</sup> Lower Level Electives, Any Level Electives, Component Area Options or Degree Requirements (DEG REQ) may consist of the FOS courses: BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412, CHEM 2423, PHYS 1401 or (the 3 credit hour course plus the 1 credit hour lab).

<sup>2</sup> Courses must be completed with a "C" or better.

## Bachelor of Science Biology - Ecology/Conservation Concentration Program Requirements

Refer to the General Education Core Requirements (<https://catalog.tamuct.edu/undergraduate-information/general-education-core-requirements/>) page for more information on the CORE REQ coursework. The Field of Study (FOS) courses are listed in the footnotes (if applicable). At least 120 credit hours are required for the degree.

Code	Title	Credit Hours
<b>First Year</b>		
Fall		
CORE REQ Communications (010)		3
MATH 2313	Calculus I (CORE REQ (020) <sup>2</sup> )	3
BIOL 1406	Biology for Science Majors I (Lecture + Lab) (CORE REQ (030) <sup>2</sup> )	4
CHEM 1411	General Chemistry I (Lecture + Lab) <sup>2</sup>	4
Spring		
CORE REQ Language, Philosophy, and Culture (040)		3
BIOL 1407	Biology for Science Majors II (Lecture + Lab) (CORE REQ (030) <sup>2</sup> )	4
CORE REQ Social and Behavioral Sciences (080)		3
CORE REQ Creative Arts (050)		3
CHEM 1412	General Chemistry II (CORE REQ (090) <sup>2</sup> )	4
<b>Second Year</b>		
Fall		
CORE REQ Communications (010)		3
CORE REQ American History (060)		3
CORE REQ Government/Political Science (070)		3
CHEM 2423	Organic Chemistry I (Lecture + Lab) <sup>2</sup>	4
Spring		
BIOL 2421	Microbiology for Science Majors <sup>2</sup>	4
CORE REQ American History (060)		3
CORE REQ Government/Political Science (070)		3
PHYS 1401	College Physics I (Lecture + Lab) <sup>2</sup>	4
CHEM 2425	Organic Chemistry II (Lecture + Lab) <sup>2</sup>	4
<b>Third Year</b>		
Fall		
BIOL 3452	Principles of Genetics <sup>2</sup>	4
BIOL 3401	Ecology <sup>2</sup>	4
CHEM 4430	Biochemistry I <sup>2</sup>	4
MATH 3350	Principles of Bio-Statistics <sup>2</sup>	3
Spring		
BIOL 4301	Conservation Biology <sup>2</sup>	3
BIOL 3440	Invertebrate Zoology <sup>2</sup>	4
BIOL 3380	Research Methods <sup>2</sup>	3
CHEM 4431	Biochemistry II <sup>2</sup>	4
<b>Fourth Year</b>		
Fall		
Any Level Elective		3
BIOL 4380	Evolution <sup>2</sup>	3
Elective - Faculty Approved		3
Elective - Faculty Approved		4

Any Level Elective		3
Spring		
BIOL 4302	Restoration Ecology <sup>2</sup>	3
BIOL 4395	Biology Capstone <sup>2</sup>	3
BIOL 4346	Animal Behavior <sup>2</sup>	3
BIOL 3430	Botany <sup>2</sup>	4
<b>Total Credit Hours</b>		<b>120</b>

<sup>1</sup> Lower Level Electives, Any Level Electives, Component Area Options, or Degree Requirements (DEG REQ) may consist of the FOS courses: BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412, CHEM 2423, PHYS 1401 or (the 3 credit hour course plus the 1 credit hour lab).

<sup>2</sup> Courses must be completed with a "C" or better.

### Bachelor of Science Biology - Organismal Biology Concentration Program Requirements

Refer to the General Education Core Requirements (<https://catalog.tamuct.edu/undergraduate-information/general-education-core-requirements/>) page for more information on the CORE REQ coursework. The Field of Study (FOS) courses are listed in the footnotes (if applicable). At least 120 credit hours are required for the degree.

Code	Title	Credit Hours
<b>First Year</b>		
Fall		
CORE REQ Communications (010)		3
MATH 2313	Calculus I (CORE REQ (020) <sup>2</sup> )	3
BIOL 1406	Biology for Science Majors I (Lecture + Lab) (CORE REQ (030) <sup>2</sup> )	4
CHEM 1411	General Chemistry I (Lecture + Lab) <sup>2</sup>	4
Spring		
CORE REQ Language, Philosophy, and Culture (040)		3
BIOL 1407	Biology for Science Majors II (Lecture + Lab) (CORE REQ (030) <sup>2</sup> )	4
CORE REQ Social and Behavioral Sciences (080)		3
CORE REQ Creative Arts (050)		3
CHEM 1412	General Chemistry II (CORE REQ (090) <sup>2</sup> )	4
<b>Second Year</b>		
Fall		
CORE REQ Communications (010)		3
CORE REQ American History (060)		3
CORE REQ Government/Political Science (070)		3
CHEM 2423	Organic Chemistry I (Lecture + Lab) <sup>2</sup>	4
Spring		
BIOL 2421	Microbiology for Science Majors <sup>2</sup>	4
CORE REQ American History (060)		3
CORE REQ Government/Political Science (070)		3

CHEM 2425	Organic Chemistry II (Lecture + Lab) <sup>2</sup>	4
PHYS 1401	College Physics I (Lecture + Lab) <sup>2</sup>	4

**Third Year**

Fall		
BIOL 3452	Principles of Genetics <sup>2</sup>	4
BIOL 3401	Ecology <sup>2</sup>	4
CHEM 4430	Biochemistry I <sup>2</sup>	4
MATH 3350	Principles of Bio-Statistics <sup>2</sup>	3
Spring		
BIOL 3315	Advanced Physiology <sup>2</sup>	3
BIOL 3430	Botany <sup>2</sup>	4
BIOL 3380	Research Methods <sup>2</sup>	3
BIOL 3420	Entomology (Footnote applied to both BIOL 3420 and 3440) <sup>2</sup>	4
or BIOL 3440	Invertebrate Zoology	

**Fourth Year**

Fall		
BIOL 4380	Evolution <sup>2</sup>	3
BIOL 3318	Animal Physiology <sup>2</sup>	3
BIOL 3445	Comparative Vertebrate Zoology <sup>2</sup>	4
Any Level Elective		3
Spring		
BIOL 4346	Animal Behavior <sup>2</sup>	3
BIOL 4395	Biology Capstone <sup>2</sup>	3
Elective - Faculty Approved		4
Elective - Faculty Approved		3
Any Level Elective		3

**Total Credit Hours** **120**

<sup>1</sup> Lower Level Electives, Any Level Electives, Component Area Options, or Degree Requirements (DEG REQ) may consist of the FOS courses: BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412, CHEM 2423, PHYS 1401 or (the 3 credit hour course plus the 1 credit hour lab).

<sup>2</sup> Courses must be completed with a "C" or better.