

BACHELOR OF SCIENCE, MAJOR IN BIOLOGY

Additional information: Reference the Program Landing Page (<https://www.shsu.edu/programs/bachelor-degree-in-biology/>) for additional information, such as cost, delivery format, contact information, or to schedule a visit.

Code	Title	Hours
Bachelor of Science, Major in Biology		
Core Curriculum		
Component Area I (Communications)		6
Component Area II (Mathematics) ¹		3
Component Area III (Life and Physical Science) (Courses for Science Majors) ²		8
Component Area IV (Language, Philosophy, and Culture)		3
Component Area V (Creative Arts)		3
Component Area VI (U.S. History)		6
Component Area VII (Political Science/Government)		6
Component Area VIII (Social and Behavioral Sciences)		3
Component Area IX (Component Area Option)		4
Degree Specific Requirements		
CHEM 1411	General Chemistry I ²	4
CHEM 1412	General Chemistry II ²	4
CHEM 2323 & CHEM 2123	Organic Chemistry I: Lecture and Organic Chemistry I: Lab	4
MATH 1420	Calculus I ¹	4
MATH 1430	Calculus II	3-4
or MATH 3379	Statistical Methods in Practice	
or STAT 3379	Statistical Methods in Practice	
PHYS 1301 & PHYS 1101	General Physics-Mechanics and Heat and General Physics Laboratory I	4
PHYS 1302 & PHYS 1102	General Physics-Sound, Light, Electricity, and Magnetism and General Physics Laboratory II	4
Major: Foundation		
BIOL 1406	General Biology I	4
BIOL 1407	General Biology II	4
BIOL 2110	Being a Professional Biologist	1
BIOL 2440	Introductory Cell Biology	4
BIOL 3450	Introductory Genetics	4
BIOL 4110	Undergraduate Seminar	1
or BIOL 4111	Undergraduate Seminar	
BIOL 4361	Evolutionary Biology	3
Major: Prescribed Electives		
BIOL Advanced Electives (3000-4000 level courses)		6
Major: Concentration ³		36-47
Minor: Not Required ^{4,5}		
Total Hours		120-132

¹ MATH 1420 fulfills the Core Curriculum requirement for Component Area II (Mathematics) and satisfies the prerequisite requirement for MATH 1430. If MATH 1420 not taken, additional hours may be needed to fulfill degree program requirements.

² CHEM 1411 and CHEM 1412 satisfy the Core Curriculum requirement for Component Area III (Life and Physical Science).

³ See Concentration course listings below.

⁴ A minor is not required for this degree program; however, a student has the option to add a minor, but to do so additional semester credits hours may be needed above the degree program's stated total semester credit hours.

⁵ All minors can be paired with this degree program.

Notes

Students must earn a 2.0 minimum overall GPA in all coursework.

Students must meet a 2.0 minimum overall major GPA in all major coursework.

Students must earn a 2.0 minimum SHSU GPA in all coursework.

Students must meet a 2.0 minimum SHSU major GPA in all major coursework.

Code	Title	Hours
Major: Concentration (Integrative Biology) ³		
BIOL 3409	General Ecology	4
BIOL 3470	General Microbiology	4
Select from the following:		28-29
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 2441	Forensic Biology Concepts	
BIOL 3364	Plant Taxonomy	
BIOL 4374	Biostatistics	
BIOL 3410	Human Biology	
BIOL 3420	Comparative Vertebrate Anatomy	
BIOL 3430	Plant Physiology	
BIOL 3440	General Physiology	
BIOL 3460	Pathophysiology	
BIOL 3461	Wildlife Biology	
BIOL 3480	Developmental Biology	
BIOL 3490	Histology	
BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
BIOL 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4306	Philosophy Of Biology	
BIOL 4320	Environmental Toxicology	
BIOL 4330	Aquatic Biology	
BIOL 4350	Immunology	
BIOL 4360	Genetic Analysis of Human Disease	
BIOL 4362	Paleobiology	
BIOL 4363	Genomics and Bioinformatics	
BIOL 4370	Microbial Ecology	
BIOL 4374	Biostatistics	
BIOL 4380	Medical Microbiology	
BIOL 4381	Advanced Molecular Biology	
BIOL 4480	Molecular Genetics	
BIOL 4481	Physiological Ecology	
BIOL 4394	Biological Sciences Internship	
BIOL 4410	General Entomology	
BIOL 4430	Vertebrate Natural History	
BIOL 4460	Parasitology	
BIOL 4470	Animal Behavior	
BIOL 4471	Invertebrate Zoology	
BIOL 4480	Molecular Genetics	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	

CHEM 2325	Organic Chemistry II: Lecture	
Total Hours		36-37
Code	Title	Hours
Major: Concentration (Cell and Molecular) ³		
BIOL 3470	General Microbiology	4
BIOL 4480 or BIOL 4490	Molecular Genetics Cell Biology	4
CHEM 2125	Organic Chemistry II: Lab	1
CHEM 2325	Organic Chemistry II: Lecture	3
CHEM 3339	Biochemistry II	3
CHEM 3438	Biochemistry I	4
Select five courses from the following (3 must be 4-credit courses):		18-20
BIOL 3460	Pathophysiology	
BIOL 3480	Developmental Biology	
BIOL 3490	Histology	
BIOL 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4350	Immunology	
BIOL 4360	Genetic Analysis of Human Disease	
BIOL 4363	Genomics and Bioinformatics	
BIOL 4380	Medical Microbiology	
BIOL 4381	Advanced Molecular Biology	
BIOL 4394	Biological Sciences Internship	
BIOL 4460	Parasitology	
BIOL 4480 or BIOL 4490	Molecular Genetics Cell Biology	
BIOL 4493	Endocrinology	
Select two from the following:		6-8
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 3409	General Ecology	
BIOL 3364	Plant Taxonomy	
BIOL 3410	Human Biology	
BIOL 3420	Comparative Vertebrate Anatomy	
BIOL 3430	Plant Physiology	
BIOL 3440	General Physiology	
BIOL 3461	Wildlife Biology	
BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
BIOL 4306	Philosophy Of Biology	
BIOL 4320	Environmental Toxicology	
BIOL 4330	Aquatic Biology	
BIOL 4362	Paleobiology	
BIOL 4370	Microbial Ecology	
BIOL 4374	Biostatistics	
BIOL 4410	General Entomology	
BIOL 4430	Vertebrate Natural History	
BIOL 4470	Animal Behavior	
BIOL 4471	Invertebrate Zoology	
Total Hours		43-47

Code	Title	Hours
Major: Concentration (Environmental, Evolutionary, and Organismal Biology) ³		
BIOL 3409	General Ecology	4
Select eight from the following (5 must be 4-credit hour courses):		29
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 3364	Plant Taxonomy	
BIOL 3410	Human Biology	
BIOL 3420	Comparative Vertebrate Anatomy	
BIOL 3430	Plant Physiology	
BIOL 3461	Wildlife Biology	
BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
BIOL 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4306	Philosophy Of Biology	
BIOL 4320	Environmental Toxicology	
BIOL 4330	Aquatic Biology	
BIOL 4362	Paleobiology	
BIOL 4370	Microbial Ecology	
BIOL 4374	Biostatistics	
BIOL 4394	Biological Sciences Internship	
BIOL 4410	General Entomology	
BIOL 4430	Vertebrate Natural History	
BIOL 4460	Parasitology	
BIOL 4470	Animal Behavior	
BIOL 4471	Invertebrate Zoology	
BIOL 4481	Physiological Ecology	
Select two from the following:		6-8
BIOL 3440	General Physiology	
BIOL 3460	Pathophysiology	
BIOL 3470	General Microbiology	
BIOL 3480	Developmental Biology	
BIOL 3490	Histology	
BIOL 4350	Immunology	
BIOL 4360	Genetic Analysis of Human Disease	
BIOL 4363	Genomics and Bioinformatics	
BIOL 4380	Medical Microbiology	
BIOL 4480	Molecular Genetics	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	
Total Hours:		39-44

Code	Title	Hours
Major: Concentration (Forensic Biology) ³		
BIOL 2441	Forensic Biology Concepts	4
BIOL 3470	General Microbiology	4
BIOL 4410	General Entomology	4
CHEM 2325	Organic Chemistry II: Lecture	3
CHEM 3438	Biochemistry I	4
FORS 3366	Forensic Science	3
FORS 4317	Applied Statistics for Forensic Science	3
FORS 4320	Fundamentals of Forensic Biology	3

FORS 4380	Ethics and Professional Practice	3
Select one from the following:		3-4
BIOL 3410	Human Biology	
BIOL 3440	General Physiology	
BIOL 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4374	Biostatistics	
BIOL 4380	Medical Microbiology	
BIOL 4490	Cell Biology	
CHEM 3339	Biochemistry II	
Select two from the following:		6-8
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 3364	Plant Taxonomy	
BIOL 3420	Comparative Vertebrate Anatomy	
BIOL 3430	Plant Physiology	
BIOL 3460	Pathophysiology	
BIOL 3461	Wildlife Biology	
BIOL 3480	Developmental Biology	
BIOL 3490	Histology	
BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
BIOL 4306	Philosophy Of Biology	
BIOL 4320	Environmental Toxicology	
BIOL 4330	Aquatic Biology	
BIOL 4350	Immunology	
BIOL 4360	Genetic Analysis of Human Disease	
BIOL 4362	Paleobiology	
BIOL 4363	Genomics and Bioinformatics	
BIOL 4370	Microbial Ecology	
BIOL 4381	Advanced Molecular Biology	
BIOL 4394	Biological Sciences Internship	
BIOL 4430	Vertebrate Natural History	
BIOL 4460	Parasitology	
BIOL 4470	Animal Behavior	
BIOL 4471	Invertebrate Zoology	
BIOL 4480	Molecular Genetics	
BIOL 4481	Physiological Ecology	
BIOL 4493	Endocrinology	

Total Hours **40-43**

Additional information: Reference the Program Landing Page (<https://www.shsu.edu/programs/bachelor-degree-in-biology/>) for additional information, such as cost, delivery format, contact information, or to schedule a visit.

First Year

Fall	Hours	Spring	Hours
Component Area II ¹		3 Component Area IV	3
BIOL 1406 or 1407		4 BIOL 1407 or 1406	4
CHEM 1411 ²		4 CHEM 1412 ²	4
ENGL 1301 ³		3 ENGL 1302 ³	3

14

14

Second Year

Fall	Hours	Spring	Hours
BIOL 2440		4 Component Area V	3
CHEM 2323 & CHEM 2123		4 Component Area IX	3
HIST 1301 ⁴		3 BIOL 2110	1
MATH 1430, 3379, or STAT 3379		3-4 BIOL 3450	4
PHYS 1301 & PHYS 1101		4 HIST 1302 ⁴	3
		POLS 2305 ⁵	3
18-19			17

Third Year

Fall	Hours	Spring	Hours
Component Area IX Concentration ⁶		1 Component Area VIII	3
		9-10 Concentration ⁶	3-6
BIOL 4361		3 BIOL 4110	1
POLS 2306 ⁵		3 BIOL Advanced Electives (3000-4000 level courses)	3
		PHYS 1302 & PHYS 1102	4
16-17			14-17

Fourth Year

Fall	Hours	Spring	Hours
Concentration ⁶		14-17 Concentration ⁶	13-17
14-17			13-17

Total Hours: 120-132

¹ MATH 1420 fulfills the Core Curriculum requirement for Component Area II (Mathematics) and satisfies the prerequisite requirement for MATH 1430. If MATH 1420 not taken, additional hours may be needed to fulfill degree program requirements.

² CHEM 1411 and CHEM 1412 satisfy the Core Curriculum requirement for Component Area III (Life and Physical Science).

³ Satisfies Core Curriculum requirement for Component Area I (Communications).

⁴ Satisfies Core Curriculum requirement for Component Area VI (U.S. History).

⁵ Satisfies Core Curriculum requirement for Component Area VII (Political Science/Government).

⁶ See Concentration course listings below.

Notes

Students must earn a 2.0 minimum overall GPA in all coursework.

Students must meet a 2.0 minimum overall major GPA in all major coursework.

Students must earn a 2.0 minimum SHSU GPA in all coursework.

Students must meet a 2.0 minimum SHSU major GPA in all major coursework.

A minor is not required for this degree program; however, a student has the option to add a minor, but to do so additional semester credits hours may be needed above the degree program's stated total semester credit hours.

All minors can be paired with this degree program.

Code	Title	Hours
Major: Concentration (Integrative Biology)⁶		
BIOL 3409	General Ecology	4
BIOL 3470	General Microbiology	4
Select from the following:		28-29
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 2441	Forensic Biology Concepts	

BIOL 3364	Plant Taxonomy
BIOL 3410	Human Biology
BIOL 3420	Comparative Vertebrate Anatomy
BIOL 3430	Plant Physiology
BIOL 3440	General Physiology
BIOL 3460	Pathophysiology
BIOL 3461	Wildlife Biology
BIOL 3480	Developmental Biology
BIOL 3490	Histology
BIOL 3492	Plant Morphology
BIOL 4080	Field and Experiential Biology
BIOL 4095	Undergraduate Research Topics in Biology
BIOL 4096	Special Topics In Undergraduate Biology
BIOL 4320	Environmental Toxicology
BIOL 4330	Aquatic Biology
BIOL 4360	Genetic Analysis of Human Disease
BIOL 4362	Paleobiology
BIOL 4363	Genomics and Bioinformatics
BIOL 4370	Microbial Ecology
BIOL 4374	Biostatistics
BIOL 4380	Medical Microbiology
BIOL 4394	Biological Sciences Internship
BIOL 4410	General Entomology
BIOL 4430	Vertebrate Natural History
BIOL 4460	Parasitology
BIOL 4470	Animal Behavior
BIOL 4480	Molecular Genetics
BIOL 4490	Cell Biology
BIOL 4493	Endocrinology
CHEM 2325	Organic Chemistry II: Lecture

Total Hours **36-37**

Code **Title** **Hours**

Major: Concentration (Cell and Molecular) ⁶

BIOL 3470 General Microbiology 4

BIOL 4480 Molecular Genetics 4

or BIOL 4490 Cell Biology

CHEM 2125 Organic Chemistry II: Lab 1

CHEM 2325 Organic Chemistry II: Lecture 3

CHEM 3339 Biochemistry II 3

CHEM 3438 Biochemistry I 4

Select 5 courses from the following (3 must be 4-credit hour courses): 18-20

BIOL 3440 General Physiology

BIOL 3460 Pathophysiology

BIOL 3480 Developmental Biology

BIOL 3490 Histology

BIOL 4095 Undergraduate Research Topics in Biology

BIOL 4096 Special Topics In Undergraduate Biology

BIOL 4350 Immunology

BIOL 4360 Genetic Analysis of Human Disease

BIOL 4363 Genomics and Bioinformatics

BIOL 4374 Biostatistics

BIOL 4380	Medical Microbiology	
BIOL 4394	Biological Sciences Internship	
BIOL 4460	Parasitology	
BIOL 4480	Molecular Genetics	
or BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	
Select two from the following:		6-8
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 3409	General Ecology	
BIOL 3364	Plant Taxonomy	
BIOL 3410	Human Biology	
BIOL 3420	Comparative Vertebrate Anatomy	
BIOL 3430	Plant Physiology	
BIOL 3461	Wildlife Biology	
BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
BIOL 4306	Philosophy Of Biology	
BIOL 4320	Environmental Toxicology	
BIOL 4330	Aquatic Biology	
BIOL 4362	Paleobiology	
BIOL 4370	Microbial Ecology	
BIOL 4410	General Entomology	
BIOL 4430	Vertebrate Natural History	
BIOL 4470	Animal Behavior	
BIOL 4471	Invertebrate Zoology	

Total Hours **43-47**

Code	Title	Hours
Major: Concentration (Environmental, Evolutionary, and Organismal Biology) ⁶		
BIOL 3409	General Ecology	4
Select eight from the following (5 must be 4-credit hour courses):		29
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 3364	Plant Taxonomy	
BIOL 3410	Human Biology	
BIOL 3420	Comparative Vertebrate Anatomy	
BIOL 3430	Plant Physiology	
BIOL 3461	Wildlife Biology	
BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
BIOL 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4320	Environmental Toxicology	
BIOL 4330	Aquatic Biology	
BIOL 4362	Paleobiology	
BIOL 4370	Microbial Ecology	
BIOL 4394	Biological Sciences Internship	
BIOL 4410	General Entomology	
BIOL 4430	Vertebrate Natural History	
BIOL 4470	Animal Behavior	
BIOL 4374	Biostatistics	

BIOL 4460	Parasitology	
BIOL 4471	Invertebrate Zoology	
Select two from the following:		6-8
BIOL 3440	General Physiology	
BIOL 3460	Pathophysiology	
BIOL 3470	General Microbiology	
BIOL 3480	Developmental Biology	
BIOL 3490	Histology	
BIOL 4350	Immunology	
BIOL 4360	Genetic Analysis of Human Disease	
BIOL 4380	Medical Microbiology	
BIOL 4480	Molecular Genetics	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	
Total Hours:		39-44

Code	Title	Hours
Major: Concentration (Forensic Biology)⁶		
BIOL 2441	Forensic Biology Concepts	4
BIOL 3470	General Microbiology	4
BIOL 4110	Undergraduate Seminar	1
BIOL 4380	Medical Microbiology	3
CHEM 2325	Organic Chemistry II: Lecture	3
CHEM 3438	Biochemistry I	4
FORS 3366	Forensic Science	3
FORS 4317	Applied Statistics for Forensic Science	3
FORS 4320	Fundamentals of Forensic Biology	3
FORS 4380	Ethics and Professional Practice	3
Select one from the following:		3-4
BIOL 3410	Human Biology	
BIOL 3440	General Physiology	
BIOL 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4374	Biostatistics	
BIOL 4480	Molecular Genetics	
BIOL 4490	Cell Biology	
CHEM 3339	Biochemistry II	
Select two from the following:		6-8
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 3364	Plant Taxonomy	
BIOL 3420	Comparative Vertebrate Anatomy	
BIOL 3430	Plant Physiology	
BIOL 3460	Pathophysiology	
BIOL 3461	Wildlife Biology	
BIOL 3480	Developmental Biology	
BIOL 3490	Histology	
BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
BIOL 4306	Philosophy Of Biology	
BIOL 4320	Environmental Toxicology	
BIOL 4330	Aquatic Biology	
BIOL 4350	Immunology	

BIOL 4360	Genetic Analysis of Human Disease
BIOL 4362	Paleobiology
BIOL 4363	Genomics and Bioinformatics
BIOL 4370	Microbial Ecology
BIOL 4394	Biological Sciences Internship
BIOL 4430	Vertebrate Natural History
BIOL 4460	Parasitology
BIOL 4470	Animal Behavior
BIOL 4471	Invertebrate Zoology
BIOL 4493	Endocrinology

Total Hours**40-43**

The Texas Higher Education Coordinating Board (THECB) marketable skills initiative is part of the state's **60x30TX plan** and was designed to help students articulate their skills to employers. Marketable skills are those skills valued by employers and/or graduate programs that can be applied in a variety of work or education settings and may include interpersonal, cognitive, and applied skill areas.

The BS in Biology is designed to provide graduates with the following marketable skills:

- Master the depth of knowledge required for a degree in the biological sciences.
- Demonstrate critical thinking.
- Communicate effectively.
- Work collaboratively.