

BACHELOR OF ARTS, 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 Arts, Major in Biology		
Core Curriculum (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/)		
Component Area I (Communication)		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		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) ^{1,3}		4
Degree Specific Requirements		
Select one of the following:		3
BIOL 4374	Biostatistics	
MATH 3379	Statistical Methods in Practice	
STAT 3379	Statistical Methods in Practice	
CHEM 1411	General Chemistry I ²	4
CHEM 1412	General Chemistry II ²	4
MATH 1410	Elementary Functions ¹	4
WOLC 1411	Beginning Foreign Language I	4
WOLC 1412	Beginning Foreign Language II (same field)	4
WOLC 2311	Intermediate Foreign Language ³	3
WOLC 2312	Intermediate Foreign Language II (same field) ³	3
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 or BIOL 4111	Undergraduate Seminar	1
BIOL 4361	Evolutionary Biology	3
Major: Prescribed Electives		
BIOL Advanced Electives (3000-4000 level courses)		4
Major: Concentration ⁴		39-58
Minor: Not Required ^{5,6}		
Total Hours		120-139

¹ Satisfies 3 hours of the Core Curriculum requirement for Component Area II (Mathematics) and 1 hour of the Core Curriculum requirement for Component Area IX (Component Area Option).

² Satisfies the Core Curriculum requirement for Component Area III (Life and Physical Sciences).

³ WOLC 2311 or WOLC 2312 satisfies the Core Curriculum requirement for Component Area IV (Language, Philosophy, and Culture) and Component Area IX (Component Area Option).

⁴ See Concentration course listings below.

⁵ 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 credit hours may be needed above the degree program's stated total semester credit hours.

⁶ 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.

This total reflects MATH 1410 satisfying Component Area II (Mathematics) and one hour of Component Area IX (Component Area Option), and CHEM 1411 and CHEM 1412 satisfying Component Area III (Life and Physical Sciences).

Code	Title	Hours
Major: Concentration (Integrative Biology) ⁴		
BIOL 3409	General Ecology	4
BIOL 3470	General Microbiology	4
Select from the following:		34-35
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 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 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 4481	Physiological Ecology	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	

CHEM 2325	Organic Chemistry II: Lecture	
Total Hours		42-43
Code	Title	Hours
Major: Concentration (Cell and Molecular) ⁴		
BIOL 3470	General Microbiology	4
BIOL 4480 or BIOL 4490	Molecular Genetics Cell Biology	4
CHEM 2123	Organic Chemistry I: Lab	1
CHEM 2125	Organic Chemistry II: Lab	1
CHEM 2323	Organic Chemistry I: Lecture	3
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 4481	Physiological Ecology	
BIOL 4493	Endocrinology	
Select two from the following:		6-8
BIOL 2411	General Botany	
BIOL 2413	General Zoology	
BIOL 3364	Plant Taxonomy	
BIOL 3409	General Ecology	
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		47-51
Code	Title	Hours
Major: Concentration (Environmental, Evolutionary, and Organismal Biology) ⁴		
BIOL 3409	General Ecology	4
Select eight from the following (5 must be 4-credit hour courses):		32
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 4381	Advanced Molecular Biology	
BIOL 4394	Biological Sciences Internship	
BIOL 4410	General Entomology	
BIOL 4430	Vertebrate Natural History	
BIOL 4470	Animal Behavior	
BIOL 4460	Parasitology	
BIOL 4471	Invertebrate Zoology	
BIOL 4481	Physiological Ecology	
Select one from the following:		3-4
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 4374	Biostatistics	
BIOL 4380	Medical Microbiology	
BIOL 4480	Molecular Genetics	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	
Total Hours		39-40
Code	Title	Hours
Major: Concentration (Forensic Biology) ⁴		
BIOL 2441	Forensic Biology Concepts	4
BIOL 3470	General Microbiology	4
BIOL 4380	Medical Microbiology	3
BIOL 4381	Advanced Molecular Biology	3

BIOL 4410	General Entomology	4
BIOL 4480	Molecular Genetics	4
CHEM 2123	Organic Chemistry I: Lab	1
CHEM 2125	Organic Chemistry II: Lab	1
CHEM 2323	Organic Chemistry I: Lecture	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 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4380	Medical Microbiology	
BIOL 4480	Molecular Genetics	
BIOL 4481	Physiological Ecology	
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 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 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 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**55-58**

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First Year

Fall	Hours	Spring	Hours
BIOL 1406 or 1407		4 BIOL 1407 or 1406	4
CHEM 1411 ¹		4 CHEM 1412 ¹	4
ENGL 1301 ²		3 ENGL 1302 ²	3
MATH 1410 ³		4	
		15	11

Second Year

Fall	Hours	Spring	Hours
BIOL 2440		4 Component Area V (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav)	3
BIOL 4374, MATH 3379, or STAT 3379		3 Component Area IX (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix)	3
HSTY 1301 ⁴		3 BIOL 2110	1
WOLC 1411 & WOLC 1412		8 BIOL 3450	4
		HSTY 1302 ⁴	3
		POLS 2305 ⁵	3
		18	17

Third Year

Fall	Hours	Spring	Hours
Concentration ⁶		8-16 Component Area VIII (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii)	3
BIOL 4361		3 BIOL 4110 or 4111	1
POLS 2306 ⁵		3 Concentration ⁶	3-8
		WOLC 2311 & WOLC 2312 ⁷	6
		14-22	13-18

Fourth Year

Fall	Hours	Spring	Hours
BIOL 3470		4 Concentration ⁶	12-15
BIOL Prescribed Electives Concentration ⁶		3 BIOL Prescribed Electives	4
		9-12	
		16-19	16-19

Total Hours: 120-139¹ Satisfies the Core Curriculum requirement for Component Area III (Life and Physical Sciences).² Satisfies Core Curriculum requirement for Component Area I (Communication).³ Satisfies 3 hours of the Core Curriculum requirement for Component Area II (Mathematics) and 1 hour of the Core Curriculum requirement for Component Area IX (Component Area Option).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.⁷ WOLC 2311 or WOLC 2312 satisfies the Core Curriculum requirement for Component Area IV (Language, Philosophy, and Culture) and Component Area IX (Component Area Option).**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.

This total reflects MATH 1410 satisfying Component Area II (Mathematics) and one hour of Component Area IX (Component Area Option), and CHEM 1411 and CHEM 1412 satisfying Component Area III (Life and Physical Sciences).

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 credit 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:		34-35
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 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 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 4481	Physiological Ecology	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	

CHEM 2325		Organic Chemistry II: Lecture	
Total Hours			42-43
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 2123	Organic Chemistry I: Lab		1
CHEM 2125	Organic Chemistry II: Lab		1
CHEM 2323	Organic Chemistry I: Lecture		3
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 hour 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	Molecular Genetics		
or BIOL 4490	Cell Biology		
BIOL 4481	Physiological Ecology		
BIOL 4493	Endocrinology		
Select two from the following:			6-8
BIOL 2411	General Botany		
BIOL 2413	General Zoology		
BIOL 3364	Plant Taxonomy		
BIOL 3409	General Ecology		
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		47-51
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):		32
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 4381	Advanced Molecular Biology	
BIOL 4394	Biological Sciences Internship	
BIOL 4410	General Entomology	
BIOL 4430	Vertebrate Natural History	
BIOL 4470	Animal Behavior	
BIOL 4460	Parasitology	
BIOL 4471	Invertebrate Zoology	
BIOL 4481	Physiological Ecology	
Select one from the following:		3-4
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 4374	Biostatistics	
BIOL 4380	Medical Microbiology	
BIOL 4480	Molecular Genetics	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	
Total Hours		39-40
Code	Title	Hours
Major: Concentration (Forensic Biology) ⁶		
BIOL 2441	Forensic Biology Concepts	4
BIOL 3470	General Microbiology	4
BIOL 4380	Medical Microbiology	3
BIOL 4381	Advanced Molecular Biology	3

BIOL 4410	General Entomology	4
BIOL 4480	Molecular Genetics	4
CHEM 2123	Organic Chemistry I: Lab	1
CHEM 2125	Organic Chemistry II: Lab	1
CHEM 2323	Organic Chemistry I: Lecture	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 4095	Undergraduate Research Topics in Biology	
BIOL 4096	Special Topics In Undergraduate Biology	
BIOL 4380	Medical Microbiology	
BIOL 4480	Molecular Genetics	
BIOL 4481	Physiological Ecology	
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 3440	General Physiology	
BIOL 3460	Pathophysiology	
BIOL 3461	Wildlife Biology	
BIOL 3480	Developmental Biology	
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BIOL 3492	Plant Morphology	
BIOL 4080	Field and Experiential Biology	
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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 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**55-58**

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

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