

# BACHELOR OF SCIENCE, MAJOR IN BIOMEDICAL SCIENCES

## Major in Biomedical Sciences

The Biomedical Sciences degree offered by the Department of Biological Sciences provides a robust, yet flexible curriculum with an emphasis on studying the biological basis of health and disease. It is designed to thoroughly prepare students for entrance into medical, dental, pharmacy, physician assistant, and other professional schools, as well as graduate study in the biomedical sciences and employment as a laboratory research assistant. No minor is required for this degree.

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

## Required Courses for the Major

The Biomedical Sciences Major must complete the following courses:

Code	Title	Hours
<b>Bachelor of Science, Major in Biomedical Sciences</b>		
<b>Core Curriculum</b> ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/</a> )		
Component Area I (Communication)		6
Component Area II (Mathematics) <sup>1</sup>		3
Component Area III (Life and Physical Science) (Courses for Science Majors) <sup>2</sup>		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
<b>Degree Specific Requirements</b>		
CHEM 1411	General Chemistry I <sup>2</sup>	4
CHEM 1412	General Chemistry II <sup>2</sup>	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
MATH 1420	Calculus I <sup>1</sup>	4
Select one of the following:		3-4
MATH 1430	Calculus II	
MATH 3379	Statistical Methods in Practice	
STAT 3379	Statistical Methods in Practice	
PHYS 1101	General Physics Laboratory I	1
PHYS 1102	General Physics Laboratory II	1
PHYS 1301	General Physics-Mechanics and Heat	3
PHYS 1302	General Physics-Sound, Light, Electricity, and Magnetism	3
<b>Major: Foundation</b>		
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 3470	General Microbiology	4
BIOL 4110	Undergraduate Seminar	1
or BIOL 4111	Undergraduate Seminar	

BIOL 4361	Evolutionary Biology	3
<b>Major: Prescribed Electives</b> <sup>3</sup>		
Select 17 SCH of the Biomedical Electives: *At least 13 hours must be advanced <sup>3</sup>		17
ANSC 3373	Animal Nutrition	
BIOL 3410	Human Biology	
BIOL 3420	Comparative Vertebrate Anatomy	
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	
or STAT 3380	Statistical Design and Analysis of Experiments	
BIOL 4380	Medical Microbiology	
BIOL 4381	Advanced Molecular Biology	
BIOL 4460	Parasitology	
BIOL 4480	Molecular Genetics	
BIOL 4490	Cell Biology	
BIOL 4493	Endocrinology	
CHEM 2401	Quantitative Analysis	
CHEM 3339	Biochemistry II	
Students may only select two of the following:		
BIOL 2404	Human Anatomy & Physiology II <sup>4</sup>	
BIOL 2441	Forensic Biology Concepts <sup>4</sup>	
COMS 3391	Interpersonal Health Communication <sup>4</sup>	
ENGL 3330	Introduction to Technical Writing <sup>4</sup>	
HLTH 3360	Epidemiology <sup>4</sup>	
PSYC 3333	Physiological Psychology <sup>4</sup>	
PSYC 3374	Development Psychology <sup>4</sup>	
<b>Electives: Advanced General</b>		
Advanced General Electives <sup>3</sup>		13
<b>Minor: Not Required</b> <sup>5,6</sup>		
<b>Total Hours</b>		<b>120-121</b>

<sup>1</sup> Satisfies Core Curriculum requirement for Component Area II (Mathematics).

<sup>2</sup> Satisfies Core Curriculum requirement for Component Area III (Life and Physical Science).

<sup>3</sup> Students may need to use Biomedical Electives and/or General Electives to reach the 42-hour requirement for advanced credit.

<sup>4</sup> No more than two of these courses may be applied toward the Biomedical Sciences degree. Students should consult with an academic advisor in the Biological Sciences early in their degree program regarding appropriate choices for their electives.

<sup>5</sup> 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 will be needed above the degree program's stated total semester credit hours.

<sup>6</sup> 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.

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

### First Year

Fall	Hours	Spring	Hours
Component Area IV ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiv">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiv</a> )		3 BIOL 1407 or 1406	4
BIOL 1406 or 1407		4 CHEM 1412 <sup>1</sup>	4
CHEM 1411 <sup>1</sup>		4 ENGL 1302 <sup>2</sup>	3
ENGL 1301 <sup>2</sup>		3 MATH 1420 <sup>3</sup>	4
		<b>14</b>	<b>15</b>

### Second Year

Fall	Hours	Spring	Hours
Component Area V ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav</a> )		3 Component Area IX ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix</a> )	3
BIOL 2440		4 BIOL 2110	1
CHEM 2323 & CHEM 2123		4 BIOL 3450 or 3470	4
HIST 1301 <sup>4</sup>		3 CHEM 2325 & CHEM 2125	4
MATH 1430, 3379, or STAT 3379		3-4 HIST 1302 <sup>4</sup>	3
		POLS 2305 <sup>5</sup>	3
		<b>17-18</b>	<b>18</b>

### Third Year

Fall	Hours	Spring	Hours
BIOL 3450 or 3470		4 Component Area VIII ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii</a> )	3
CHEM 3438		4 BIOL 4361	3
PHYS 1301 & PHYS 1101		4 PHYS 1302 & PHYS 1102	4
POLS 2306 <sup>5</sup>		3 Prescribed Electives <sup>6</sup>	4
		<b>15</b>	<b>14</b>

### Fourth Year

Fall	Hours	Spring	Hours
Advanced General Electives <sup>7</sup>		4 BIOL 4111 or 4110	1
Prescribed Electives <sup>6</sup>		10 Advanced General Electives <sup>7</sup>	9
		Prescribed Electives <sup>6</sup>	3
		<b>14</b>	<b>13</b>

**Total Hours: 120-121**

<sup>1</sup> Satisfies Core Curriculum requirement for Component Area III (Life and Physical Science).

<sup>2</sup> Satisfies Core Curriculum requirement for Component Area I (Communications).

<sup>3</sup> Satisfies Core Curriculum requirement for Component Area II (Mathematics).

<sup>4</sup> Satisfies Core Curriculum requirement for Component Area VI (U.S. History).

<sup>5</sup> Satisfies Core Curriculum requirement for Component Area VII (Political Science).

<sup>6</sup> See, Prescribed Electives course listing below. \*At least 13 hours of these electives must be advanced.

<sup>7</sup> Students may need to use Biomedical electives and/or Free electives to reach the 42-hour requirement for advanced credit.

Code	Title	Hours
<b>Prescribed Electives</b>		
ANSC 3373	Animal Nutrition	3
BIOL 3410	Human Biology	4
BIOL 3420	Comparative Vertebrate Anatomy	4
BIOL 3440	General Physiology	4
BIOL 3460	Pathophysiology	4
BIOL 3480	Developmental Biology	4
BIOL 3490	Histology	4
BIOL 4095	Undergraduate Research Topics in Biology	4
BIOL 4350	Immunology	3
BIOL 4360	Genetic Analysis of Human Disease	3
BIOL 4363	Genomics and Bioinformatics	3
BIOL 4374	Biostatistics	3
or STAT 3380	Statistical Design and Analysis of Experiments	
BIOL 4380	Medical Microbiology	3
BIOL 4381	Advanced Molecular Biology	3
BIOL 4460	Parasitology	4
BIOL 4480	Molecular Genetics	4
BIOL 4490	Cell Biology	4
BIOL 4493	Endocrinology	4
CHEM 2401	Quantitative Analysis	4
CHEM 3339	Biochemistry II	3
Student may only select two of the following:		
BIOL 2404	Human Anatomy & Physiology II <sup>1</sup>	4
BIOL 2441	Forensic Biology Concepts <sup>1</sup>	4
COMS 3391	Interpersonal Health Communication <sup>1</sup>	3
ENGL 3330	Introduction to Technical Writing <sup>1</sup>	3
HLTH 3360	Epidemiology <sup>1</sup>	3
PSYC 3333	Physiological Psychology <sup>1</sup>	3
PSYC 3374	Development Psychology <sup>1</sup>	3

<sup>1</sup> No more than two courses may be applied toward the Biomedical Sciences degree. Students should consult with an academic advisor in the Biological Sciences early in their degree program regarding appropriate choices for their electives.

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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 Biomedical Sciences is designed to provide graduates with the following marketable skills:

- Master the depth of knowledge required for a degree in biomedical sciences.
- Demonstrate critical thinking.

- Communicate effectively.
- Work collaboratively.