

BACHELOR OF SCIENCE, MAJOR IN BIOMEDICAL SCIENCE

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.

Required Courses for the Major

The Biomedical Science Major must complete the following courses:

Code	Title	Hours
Bachelor of Science, Major in Biomedical Sciences		
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)		3
Component Area III (Life and Physical Science) (Courses for Science Majors)		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	4
CHEM 1412	General Chemistry II	4
CHEM 2323	Organic Chemistry I: Lecture	3
CHEM 2123	Organic Chemistry I Lab	1
CHEM 2325	Organic Chemistry II: Lecture	3
CHEM 2125	Organic Chemistry II: Lab	1
CHEM 3438	Biochemistry I	4
MATH 1420	Calculus I	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 1301	General Phy-Mechanics & Heat	3
PHYS 1101	General Physics Laboratory I	1
PHYS 1302	Gen Phy-Snd,Lght, Elec, & Mag	3
PHYS 1102	General Physics Laboratory II	1
Major Core		
BIOL 1411	General Botany	4
BIOL 1413	General Zoology	4
BIOL 2440	Introductory Cell Biology	4
BIOL 3450	Introductory Genetics	4
BIOL 3470	General Microbiology	4
BIOL 4361	Evolutionary Biology	3
Major Electives		
Select 21 SCH of the Biomedical Electives: ²		21
ANSC 3373	Animal Nutrition	
BIOL 3409	General Ecology	
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	Undergrad Rsrch Tpcs-Biology
BIOL 4410	General Entomology
BIOL 4350	Immunology
BIOL 4360	Genetic Anlys of Human Disease
BIOL 4363	Genomics and Bioinformatics
BIOL 4380	Medical Microbiology
BIOL 4460	Parasitology
BIOL 4480	Molecular Biology
BIOL 4490	Cell Biology
BIOL 4493	Endocrinology
CHEM 2401	Quantitative Analysis
CHEM 3339	Biochemistry II
COMS 2382	Comm. for Bus. & Professions ¹
ENGL 3330	Intro to Technical Writing ¹
HLTH 2372	Health & Medical Terminology ¹
PSYC 3331	Abnormal Psychology ¹
PSYC 3374	Development Psychology ¹
Free Electives to reach 120 total credit hours ²	
11	
Total Hours	120-121

¹ 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.

² Students may need to use Biomedical electives and/or Free electives to reach the 42-hour requirement for advanced credit.

Note: This total reflects MATH 1420 satisfying Component Area II and one hour of Component Area IX, and BIOL 1411 and BIOL 1413 satisfying Component Area III.

Teacher Certification in the Life Sciences

Biology Majors

Students may receive teacher certification in the Life Sciences for grades 8-12 by pairing a major in Biology (BS only as outlined above) with a Secondary Teacher Certification from the Department of Curriculum and Instruction. Students pursuing this degree combination should include BIOL 3492 as one of their advanced biology electives.

For students seeking a Secondary Teacher Certification in the Life Sciences, no grade below C in the science coursework in BIOL is accepted. The required education courses are:

Code	Title	Hours
Course Requirements		
CISE 3384	The Teaching Profession	3
CISE 4364	Mth Tch Secondary Schools	3
CISE 4378	Content Literacy	3
CISE 4380	Respon Of Pro Educator	3
CISE 4394	Creatng Env For Lrng-Secondary	3
CISE 4396	Std Tch Secondary Classroom	3
CISE 4397	Std Tch Secondary Classroom	3
Total Hours		21

First Year

Fall	Hours	Spring	Hours
Component Area IV (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiv)		3 BIOL 1411 or 1413 ¹	4
BIOL 1411 or 1413 ¹		4 CHEM 1412	4
CHEM 1411		4 ENGL 1302 ²	3
ENGL 1301 ²		3 MATH 1420 ³	4
	14		15

Second Year

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

Third Year

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

Fourth Year

Fall	Hours	Spring	Hours
Biomedical or Free Electives ^{6,7}		14 Biomedical or Free Electives ^{6,7}	14
	14		14

Total Hours: 120-121

- 1 Satisfies Core Curriculum requirement for Component Area III (Life and Physical Science).
- 2 Satisfies Core Curriculum requirement for Component Area I (Communications).
- 3 Satisfies Core Curriculum requirement for Component Area II (Mathematics).
- 4 Satisfies Core Curriculum requirement for Component Area VI (U.S. History).
- 5 Satisfies Core Curriculum requirement for Component Area VII (Political Science).
- 6 See, Biomedical Elective course listing below.
- 7 Students may need to use the Biomedical electives or the Free electives to meet the 42-hour advanced credit requirement.

Code	Title	Hours
Biomedical Elective Courses		
ANSC 3373	Animal Nutrition	3
BIOL 3409	General Ecology	4
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	Undergrad Rsrch Tpcs-Biology	4
BIOL 4110	Undergraduate Seminar	1
BIOL 4350	Immunology	3
BIOL 4360	Genetic Anlys of Human Disease	3
BIOL 4363	Genomics and Bioinformatics	3
BIOL 4380	Medical Microbiology	3
BIOL 4460	Parasitology	4
BIOL 4480	Molecular Biology	4
BIOL 4490	Cell Biology	4
BIOL 4493	Endocrinology	4
CHEM 2401	Quantitative Analysis	4
CHEM 3339	Biochemistry II	3
COMS 2382	Comm. for Bus. & Professions	3
ENGL 3330	Intro to Technical Writing	3
HLTH 2372	Health & Medical Terminology	3
PSYC 3331	Abnormal Psychology	3
PSYC 3374	Development Psychology	3

Note: This total reflects MATH 1420 (<http://catalog.shsu.edu/archives/2020-2021/search/?P=MATH%201420>) satisfying Component Area II and one hour of Component Area IX, and BIOL 1411 (<http://catalog.shsu.edu/archives/2020-2021/search/?P=BIOL%201411>) and BIOL 1413 (<http://catalog.shsu.edu/archives/2020-2021/search/?P=BIOL%201413>) satisfying Component Area III.

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 Science 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.