BACHELOR OF SCIENCE, MAJOR IN CHEMISTRY: BIOCHEMISTRY AND MEDICINE CONCENTRATION

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

Code	Title	Hours
Bachelor of Science, Major in Chemistry: Biochemistry and Medicine Concentration		
Core Curriculum (https://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 Sciences) [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) [1, 3]		4
Degree Specific Requirement		
ENGL 3330	Introduction to Technical Writing	3
MATH 1420	Calculus I [1]	4
MATH 1430	Calculus II	4
UNIV 1101	Bearkat U [3]	1
Major: Foundation		
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
CHEM 2325 & CHEM 2125	Organic Chemistry II: Lecture and Organic Chemistry II: Lab	4
CHEM 2401	Quantitative Analysis	4
CHEM 3367	Inorganic Chemistry	3
CHEM 4100	Professional Communication in Chemistry	1
CHEM 4260	Advanced Chemistry Lab	2
CHEM 4448	Physical Chemistry I	4
Concentration: Biochemistry and Medicine		
BIOL 1406	General Biology I	4
BIOL 1407	General Biology II	4
CHEM 3339	Biochemistry II	3
CHEM 3438	Biochemistry I	4
CHEM 4367	Advanced Inorganic Chemistry	3
CHEM 4440	Instrumental Analytical Chemistry	4
PHYS 1301 & PHYS 1101	General Physics-Mechanics and Heat and General Physics Laboratory I	4
or PHYS 1411	Introduction To Physics I	
PHYS 1302 & PHYS 1102	General Physics-Sound, Light, Electricity, and Magnetism and General Physics Laboratory II	4
or PHYS 1422	Introduction To Physics II	
Concentration: Prescribed Electives		
Select 12 hours from the following:		12
BIOL 2401	Human Anatomy	

or BIOL 2403	Human Anatomy & Physiology I
BIOL 2402	Human Physiology
or BIOL 2404	Human Anatomy & Physiology II
BIOL 2440	Introductory Cell Biology
BIOL 3450	Introductory Genetics
CHEM 4327	Polymer Chemistry
CHEM 4380	Forensic Chemistry
CHEM 4395	Undergraduate Research In Chemistry
CHEM 4449	Physical Chemistry II
MATH 1342	Elementary Statistics
MATH 3379	Statistical Methods in Practice
FORS 4317	Applied Statistics for Forensic Science
Electives: Advanced General	
Advanced Electives [4]	6
Minor: Not Required [5]	
Total Hours	**120**

1 MATH 1420 satisfies the Core Curriculum requirement for Component Area II (Mathematics) and one credit hour of the Core Curriculum requirement for Component Area IX (Component Area Option).

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

3 UNIV 1101 satisfies one credit hour of the Core Curriculum requirement for Component Area IX (Component Area Option) and the Degree Specific requirement.

4 Six hours if all prescribed electives are advanced courses, more if non-advanced prescribed electives are selected. Students must complete at least 42 hours of advanced coursework.

5 A minor is not required but can be paired with this major. A minor generally requires six semesters of coursework, a minimum of 18 credits (six advanced) in an approved field. The Minor in Chemistry cannot be paired with this degree program. The Minor in Advanced Chemistry can be paired with this major, but students must complete at least six additional chemistry hours beyond those in the major.

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 grade of C or higher is required for CHEM 1411, CHEM 1412, CHEM 2123, CHEM 2125, CHEM 2323, CHEM 2325, CHEM 2401, CHEM 3367, CHEM 4448, and in all required Physics and Mathematics courses.

A minor generally requires six semesters of coursework, a minimum of 18 credits (six advanced) in an approved field. Students should use elective and minor hours to satisfy the 42 advanced hour requirement. Advanced hours are 3000- and 4000-level courses.

First Year

Fall	Hours	Spring	Hours
BIOL 1406	4	Component Area IV (https://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiv)	3
CHEM 1411[1]	4	CHEM 1412[1]	4
ENGL 1301[2]	3	ENGL 1302[2]	3
MATH 1420[3]	4	MATH 1430	4
UNIV 1101[4]	1		
	16		**14**

Second Year

Fall	Hours	Spring	Hours
CHEM 2323 & CHEM 2123	4	BIOL 1407	4
CHEM 2401	4	CHEM 2325 & CHEM 2125	4
CHEM 3367	3	ENGL 3330	3
PHYS 1301 & PHYS 1101 (or PHYS 1411)	4	PHYS 1302 & PHYS 1102 (or PHYS 1422)	4
	15		**15**

Third Year

Fall	Hours	Spring	Hours
CHEM 3438	4	Component Area V (https://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav)	3
CHEM 4448	4	Component Area IX (https://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix)	3
HSTY 1301[5]	3	CHEM 3339	3
POLS 2306[6]	3	Concentration: Prescribed Electives[7]	3
		HSTY 1302[5]	3
	14		**15**

Fourth Year

Fall	Hours	Spring	Hours
Advanced Electives[8]	3	Component Area VIII (https://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii)	3
CHEM 4100	1	Advanced Electives[8]	3
CHEM 4440	4	CHEM 4260	2
Concentration: Prescribed Electives[7]	6	CHEM 4367	3
POLS 2305[6]	3	Concentration: Prescribed Electives[7]	3
	17		**14**

Total Hours: 120

1. Satisfies the Core Curriculum requirement for Component Area III (Life and Physical Science).
2. Satisfies the Core Curriculum requirement for Component Area I (Communication).
3. Satisfies the Core Curriculum requirement for Component Area II (Mathematics) and one credit hour of the Core Curriculum requirement for Component Area IX (Component Area Option).
4. UNIV 1101 satisfies one credit hour of the Core Curriculum requirement for Component Area IX (Component Area Option) and the Degree Specific requirement.
5. Satisfies the Core Curriculum requirement for Component Area VI (U.S. History).
6. Satisfies the Core Curriculum requirement for Component Area VII (Political Science/Government).
7. See Concentration: Prescribed Electives listing below.
8. Electives should be chosen to meet the requirement of 42 advanced hours. A minor is not required but can be chosen. A minor generally requires six semesters of coursework, a minimum of 18 credits (six advanced) in an approved field. Students should use elective and minor hours to satisfy the 42 advanced hour requirement. Advanced hours are 3000- and 4000-level courses.

Code	Title	Hours
Concentration: Prescribed Electives [7]		
Select 12 hours from the following:		
BIOL 2401	Human Anatomy	4
or BIOL 2403	Human Anatomy & Physiology I	
BIOL 2402	Human Physiology	4

or BIOL 2404	Human Anatomy & Physiology II	
BIOL 2440	Introductory Cell Biology	4
BIOL 3450	Introductory Genetics	4
CHEM 4327	Polymer Chemistry	3
CHEM 4380	Forensic Chemistry	3
CHEM 4395	Undergraduate Research In Chemistry	3
CHEM 4449	Physical Chemistry II	4
MATH 1342	Elementary Statistics	3
MATH 3379	Statistical Methods in Practice	3
FORS 4317	Applied Statistics for Forensic Science	3

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 grade of C or higher is required for CHEM 1411, CHEM 1412, CHEM 2123, CHEM 2125, CHEM 2323, CHEM 2325, CHEM 2401, CHEM 3367, CHEM 4448, and in all required Physics and Mathematics courses.

A minor is not required but can be paired with this major. A minor generally requires six semesters of coursework, a minimum of 18 credits (six advanced) in an approved field. The Minor in Chemistry cannot be paired with this degree program. The Minor in Advanced Chemistry can be paired with this major, but students must complete at least six additional chemistry hours beyond those in the major. Students should use elective and minor hours to satisfy the 42 advanced hour requirement. Advanced hours are 3000- and 4000-level courses.

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 Chemistry: Biochemistry and Medicine Concentration is designed to provide graduates with the following marketable skills:

- Work safely with standard chemicals in a chemistry or biochemistry laboratory.
- Keep thorough and accurate records of chemistry and biochemistry experiments.
- Write final research reports and orally present results of experiments.
- Analyze and interpret experimental data, including spectrophotometric data and kinetic data.
- Manipulate enzyme function for use in chemistry, biochemistry, or medicine.