

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

Code	Title	Hours
Bachelor of Science, Major in Chemistry: Biochemistry and Medicine Concentration		
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 (American History)	6
	Component Area VII (Government/Political Science)	6
	Component Area VIII (Social and Behavioral Sciences)	3
	Component Area IX (Component Area Option) ¹	4
Degree Specific Requirement		
MATH 1420	Calculus I ¹	4
MATH 1430	Calculus II	4
ENGL 3330	Intro to Technical Writing	3
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 4100	Chemical Literature Seminar	1
CHEM 4260	Advanced Integrated Laboratory	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 Chem	4
PHYS 1301 & PHYS 1101	General Phy-Mechanics & Heat and General Physics Laboratory I	4
PHYS 1302 & PHYS 1102	Gen Phy-Snd,Lght, Elec, & Mag and General Physics Laboratory II	4
UNIV 1101	Bearkat U	1
Concentration: Prescribed Electives		12
Select 12 hours from the following:		
BIOL 2401 or BIOL 2403	Human Anatomy Human Anatomy & Physiology I	
BIOL 2402 or BIOL 2404	Human Physiology Human Anatomy & Physiology II	
BIOL 3450	Introductory Genetics	
CHEM 3367	Intro Inorganic Chemistry	
CHEM 4327	Polymer Chemistry	
CHEM 4380	Forensic Chemistry	

CHEM 4395	Undergrad Research In Chem	
CHEM 4449	Physical Chemistry II	
MATH 1342	Elementary Statistics	
MATH 3379	Statistical Mthods in Practice	
FORS 4317	Applied Statistics for Forensic Science	
Electives: Advanced General		
Advanced Electives ³		2
Minor		
Minor Required (at least 6 advanced hours) ⁴		7
Total Hours		120

¹ MATH 1420 requirement for Core Curriculum Component Area II (Mathematics) as well as one hour of Component Area IX (Component Area Option).

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

³ 2 hours, more if non-advanced prescribed electives are selected.

⁴ Recommended Biology minor is 7-8 additional advanced hours if BIOL 3450 was one of the prescribed electives, 11-12 hours otherwise.

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 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%201411>), CHEM 1412 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%201412>), CHEM 2323 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%202323>), CHEM 2123 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%202123>), CHEM 2325 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%202325>), CHEM 2125 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%202125>), CHEM 2401 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%202401>), and CHEM 4448 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%204448>), 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 BIOL 1407	4
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		1	
		16	15

Second Year

Fall	Hours	Spring	Hours
Component Area IV (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareiv)		3 CHEM 2125	1
CHEM 2123		1 CHEM 2325	3
CHEM 2323		3 ENGL 3330	3
CHEM 2401		4 PHYS 1302 & PHYS 1102	4

PHYS 1301 & PHYS 1101		4 POLS 2305 ⁴	3
		15	14
Third Year			
Fall	Hours	Spring	Hours
CHEM 3438		4 Component Area V (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav)	3
CHEM 4448		4 Component Area IX (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix)	3
HIST 1301 ⁵		3 Concentration: Prescribed Elective	3
POLS 2306 ⁴		3 HIST 1302 ⁵	3
		CHEM 3339	3
		14	15
Fourth Year			
Fall	Hours	Spring	Hours
CHEM 4440		4 Component Area VIII (http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii)	3
CHEM 4100		1 CHEM 4260	2
Concentration: Prescribed Elective		3 CHEM 4367	3
Concentration: Prescribed Elective		3 Concentration: Prescribed Elective	3
Elective: Advanced General ⁶		2 Minor Advanced ⁷	4
Minor Advanced ⁷		3	
		16	15

Total Hours: 120

¹ Satisfies the requirement for Core Curriculum Component Area III: Life and Physical Science.

² Satisfies the requirement for Core Curriculum Component Area I: Communications.

³ Satisfies the requirement for Core Curriculum Component Area II: Mathematics as well as one hour of Component Area IX (Component Area Option).

⁴ Satisfies the requirement for Core Curriculum Component Area VII: Political Science/Government.

⁵ Satisfies the requirement for Core Curriculum Component Area VI: U.S. History.

⁶ 2 hours, more if non-advanced prescribed electives are selected.

⁷ A minor generally requires six semesters of coursework, a minimum of 18 credits (six advanced) in approved field. Students should use elective and minor hours to satisfy the 42 advanced hour requirement. Advanced hours are 3000 and 4000-level courses. A minor in Biology, as a common example, requires 7 additional hours beyond BIOL 1406, BIOL 1407, CHEM 1411, CHEM 1412, and BIOL 3450 (which can be selected as a prescribed elective).

The following minors cannot be paired with this degree program: Minor in Chemistry.

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(<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%202401>), and CHEM 4448 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=CHEM%204448>), and in all required Physics and Mathematics courses.

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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 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.