

# BACHELOR OF SCIENCE, MAJOR IN CHEMISTRY FOR PROFESSIONAL CHEMISTS

Code	Title	Hours
<b>Bachelor of Science, Major in Chemistry for Professional Chemists</b>		
Core Curriculum ( <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 Sciences) <sup>2</sup>		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) <sup>1</sup>		4
<b>Degree Specific Requirements</b>		
ENGL 3330	Intro to Technical Writing	3
MATH 1420	Calculus I <sup>1</sup>	4
MATH 1430	Calculus II	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
<b>Major: Foundation</b>		
CHEM 1411	General Chemistry I <sup>2</sup>	4
CHEM 1412	General Chemistry II <sup>2</sup>	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 3438	Biochemistry I	4
CHEM 4100	Chemical Literature Seminar	1
CHEM 4260	Advanced Integrated Laboratory	2
CHEM 4327	Polymer Chemistry	3
CHEM 4367	Advanced Inorganic Chemistry	3
CHEM 4395	Undergrad Research In Chem	3
CHEM 4440	Instrumental Analytical Chem	4
CHEM 4448	Physical Chemistry I	4
CHEM 4449	Physical Chemistry II	4
<b>Electives: Advanced</b>		
Advanced Electives		6
<b>Electives: General</b>		
UNIV 1101	Bearkat U (or general elective) <sup>5</sup>	1
General Electives		6
<b>Minor: Required</b>		
A minor, including 6 advanced hours <sup>3,4</sup>		10
<b>Total Hours</b>		<b>120</b>

<sup>1</sup> MATH 1420 satisfies the Core Curriculum requirement for Component Area II (Mathematics), the one semester credit hour Core Curriculum requirement for Component Area IX (Component Area Option) as well as the Degree Specific requirement.

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<sup>2</sup> CHEM 1411 and CHEM 1412 satisfy the Core Curriculum requirement for Component Area III (Life and Physical Science) and the Major requirement.

<sup>3</sup> 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 MATH, as a common example, requires 10 additional hours beyond MATH 1420 and MATH 1430.

<sup>4</sup> The following minor cannot be paired with this degree program: Minor in Chemistry.

<sup>5</sup> Or general elective.

**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 2323, CHEM 2123, CHEM 2325, CHEM 2125, CHEM 2401, and 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.

## Emphasis in Biochemistry-Biotechnology

Students seeking a background that will prepare them for the emerging technologies in biochemistry and biotechnology can select advanced courses that will lead to a Major in Chemistry and a Minor in Biology.

**First Year**

Fall	Hours	Spring	Hours
CHEM 1411 <sup>1</sup>		4 CHEM 1412 <sup>1</sup>	4
ENGL 1301 <sup>2</sup>		3 ENGL 1302 <sup>2</sup>	3
HIST 1301 <sup>3</sup>		3 HIST 1302 <sup>3</sup>	3
MATH 1420 <sup>4</sup>		4 MATH 1430	4
UNIV 1101 <sup>5</sup>		1	
		<b>15</b>	<b>14</b>

**Second 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 CHEM 2125	1
CHEM 2123		1 CHEM 2325	3
CHEM 2323		3 ENGL 3330	3
CHEM 2401		4 Minor <sup>6,7</sup>	4
PHYS 1101		1 PHYS 1102	1
PHYS 1301		3 PHYS 1302	3
		<b>15</b>	<b>15</b>

**Third Year**

Fall	Hours	Spring	Hours
CHEM 3438		4 Component Area V ( <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
CHEM 4448		4 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
Elective (General)		3 CHEM 4449	4

Elective (General)		3 Minor Advanced <sup>6,7</sup>	3
POLS 2305 <sup>8</sup>		3 POLS 2306 <sup>8</sup>	3
		<b>17</b>	<b>16</b>
<b>Fourth Year</b>			
<b>Fall</b>	<b>Hours</b>	<b>Spring</b>	<b>Hours</b>
CHEM 4100		1 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 4440		4 CHEM 4260	2
CHEM 4327		3 CHEM 4367	3
Elective (Advanced)		3 CHEM 4395	3
Minor Advanced <sup>6,7</sup>		3 Elective (Advanced)	3
		<b>14</b>	<b>14</b>
<b>Total Hours: 120</b>			

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

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

<sup>3</sup> Satisfies Core Curriculum requirement for Component Area VI (U.S. History).

<sup>4</sup> Satisfies Core Curriculum requirement for Component Area II (Mathematics), and one semester credit hour Core Curriculum requirement for Component Area IX (Component Area Option) as well as the Degree Specific requirement.

<sup>5</sup> Or general elective.

<sup>6</sup> 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 MATH, as a common example, requires 10 additional hours beyond MATH 1420 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=MATH%201420>) and MATH 1430 (<http://catalog.shsu.edu/archives/2023-2024/search/?P=MATH%201430>).

<sup>7</sup> The following minor cannot be paired with this degree program: Minor in Chemistry.

<sup>8</sup> Satisfies Core Curriculum requirement for Component Area VII (Political Science/Government).

## Notes

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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 for Professional Chemists is designed to provide graduates with the following marketable skills:

- Work safely with standard chemicals in a chemistry laboratory.
- Keep thorough and accurate records of chemistry experiments.
- Write final research reports and orally present results of experiments.
- Analyze and interpret experimental data, including spectrophotometric data.
- Understand the use of the major methods of purification of chemical compounds, including chromatographic techniques.