

# BACHELOR OF SCIENCE, MAJOR IN FORENSIC CHEMISTRY

Students seeking background and training in the area of forensic science can obtain a Bachelor of Science degree in Forensic Chemistry with either a Criminal Justice minor or a Forensic Science minor. This degree option educates students for careers in forensic chemistry in both private and government arenas and also prepares students to enter graduate schools in forensic science.

| Code  | Title   | Hours |
|---|---|-------|
| <b>Bachelor of Science, Major in Forensic Chemistry with Criminal Justice Minor</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) <sup>3</sup>   |   | 3     |
| Component Area IX (Area IV elective or Oral Communication)  |   | 4     |
| <b>Degree Specific Requirements</b>   |   |       |
| BIOL 1406   | General Biology I   | 4     |
| BIOL 1407   | General Biology II  | 4     |
| BIOL 3450   | Introductory Genetics   | 4     |
| ENGL 3330   | Intro to Technical Writing                                      | 3     |
| MATH 1420   | Calculus I <sup>1</sup>   | 4     |
| MATH 1430   | Calculus II   | 4     |
| MATH 3379   | Statistical Methods in Practice                                 | 3     |
| or FORS 4317  | Applied Statistics for Forensic Science                         |       |
| 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 4367   | Advanced Inorganic Chemistry                                    | 3     |
| CHEM 4380   | Forensic Chemistry  | 3     |
| CHEM 4448   | Physical Chemistry I  | 4     |
| CHEM 4440   | Instrumental Analytical Chem                                    | 4     |
| <b>Minor: Required</b>  |   |       |
| Criminal Justice Minor  |   |       |
| CRIJ 2361   | Intro To The Crim Justice Sys <sup>3</sup>                      | 3     |
| CRIJ 2362   | Criminology   | 3     |
| CRIJ 2364   | Fundamentals Of Criminal Law                                    | 3     |
| CRIJ 3378   | Intro To Methods Of Research                                    | 3     |
| CRIJ 4385   | Criminl Justc & Social Divrsty                                  | 3     |

|   |   |            |
|---|---|------------|
| FORS 3366                               | Forensic Science                          | 3          |
| <b>Electives: General</b>               |   |            |
| UNIV 1101                               | Learning Frameworks (or general elective) | 1          |
| <b>Electives: Advanced</b> <sup>4</sup> |   |            |
| <b>7</b>                                |   |            |
| Advanced Electives                      |   |            |
| <b>Total Hours</b>                      |   | <b>126</b> |

<sup>1</sup> MATH 1420 satisfies the Core Curriculum requirement for Component Area II (Mathematics) and the Degree Specific requirement.

<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> CRIJ 2361 satisfies Core Curriculum requirement for the Component Area VIII (Social and Behavioral Sciences) and the CJ minor requirement.

<sup>4</sup> Students who are interested in the graduate programs in Forensic Science at SHSU are encouraged to take BIOL 3470 and either BIOL 4480 or BIOL 4381 as advanced electives. Students seeking licensing as Forensic Analysts are encouraged to take FORS 4317 (or alternatively MATH 3379) to meet statistics requirements to take the licensing exam (the most up to date licensing requirement (<https://www.txcourts.gov/fsc/licensing/>)). Course selections in minor and electives must ensure at least 42 advanced hours for degree.

| Code  | Title   | Hours |
|---|---|-------|
| <b>Bachelor of Science, Major in Forensic Chemistry with Forensic Science Minor</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 (Area IV elective or Oral Communication)  |   | 4     |
| <b>Degree Specific Requirements</b>   |   |       |
| BIOL 1406   | General Biology I   | 4     |
| BIOL 1407   | General Biology II  | 4     |
| BIOL 3450   | Introductory Genetics   | 4     |
| ENGL 3330   | Intro to Technical Writing                                      | 3     |
| MATH 1420   | Calculus I <sup>1</sup>   | 4     |
| MATH 1430   | Calculus II   | 4     |
| MATH 3379   | Statistical Methods in Practice                                 | 3     |
| or FORS 4317  | Applied Statistics for Forensic Science                         |       |
| 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 4367   | Advanced Inorganic Chemistry                                    | 3     |
| CHEM 4380   | Forensic Chemistry  | 3     |

|   |   |                |
|---|---|----------------|
| CHEM 4448   | Physical Chemistry I                      | 4              |
| CHEM 4440   | Instrumental Analytical Chem              | 4              |
| <b>Minor: Required<sup>3</sup></b>                              |   |                |
| Forensic Science Minor Coursework (18 hrs, at least 6 advanced) |   | 18             |
| <b>Electives: General</b>                                       |   |                |
| UNIV 1101   | Learning Frameworks (or general elective) | 1              |
| Advanced Electives <sup>4</sup>                                 |   | 4-10           |
| <b>Total Hours</b>  |   | <b>126-132</b> |

<sup>1</sup> MATH 1420 satisfies the Core Curriculum requirement for Component Area II (Mathematics) and the Degree Specific requirement.

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

<sup>4</sup> Students who are interested in the graduate programs in Forensic Science at SHSU are encouraged to take BIOL 3470 (<http://catalog.shsu.edu/archives/2022-2023/search/?P=BIOL%203470>) and either BIOL 4480 (<http://catalog.shsu.edu/archives/2022-2023/search/?P=BIOL%204480>) or BIOL 4381 (<http://catalog.shsu.edu/archives/2022-2023/search/?P=BIOL%204381>) as advanced electives. Students seeking licensing as Forensic Analysts are encouraged to take FORS 4317 (<http://catalog.shsu.edu/archives/2022-2023/search/?P=FORS%204317>) (or alternatively MATH 3379 (<http://catalog.shsu.edu/archives/2022-2023/search/?P=MATH%203379>)) to meet statistics requirements to take the licensing exam (the most up to date licensing requirements (<https://www.txcourts.gov/fsc/licensing/>)). Course selections in minor and electives must ensure at least 42 advanced hours for degree.

## 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, CHEM 4448 and CHEM 4440, and in all required Physics and Mathematics courses.

## First Year

| Fall                            | Hours | Spring                   | Hours     |
|---------------------------------|-------|--------------------------|-----------|
| BIOL 1406                       |       | 4 BIOL 1407              | 4         |
| CHEM 1411 <sup>1</sup>          |       | 4 CHEM 1412 <sup>1</sup> | 4         |
| ENGL 1301 <sup>2</sup>          |       | 3 ENGL 1302 <sup>2</sup> | 3         |
| MATH 1420 <sup>3</sup>          |       | 4 MATH 1430              | 4         |
| UNIV 1101 (Or general elective) |       | 1                        |           |
|                                 |       | <b>16</b>                | <b>15</b> |

## Second Year

| Fall                   | Hours | Spring      | Hours     |
|------------------------|-------|-------------|-----------|
| CHEM 2123              |       | 1 CHEM 2125 | 1         |
| CHEM 2323              |       | 3 CHEM 2325 | 3         |
| CHEM 2401              |       | 4 ENGL 3330 | 3         |
| CRIJ 2361 <sup>4</sup> |       | 3 FORS 3366 | 3         |
| PHYS 1101              |       | 1 PHYS 1102 | 1         |
| PHYS 1301              |       | 3 PHYS 1302 | 3         |
|                        |       | <b>15</b>   | <b>14</b> |

## Third 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 3450   | 4     |
| CHEM 3438   |       | 4 CRIJ 2364 (or FORS minor course for FORS minors) <sup>6</sup> | 3     |

|   |   |           |
|---|---|-----------|
| CHEM 4448   | 4 CRIJ 3378 (or FORS minor course for FORS minors) <sup>6</sup> | 3         |
| POLS 2305 <sup>5</sup>  | 3 Elective (Advanced) <sup>7</sup>                              | 4         |
| CRIJ 2362 (or FORS minor course for FORS minors) <sup>6</sup> | 3 POLS 2306 <sup>5</sup>  | 3         |
| <b>17</b>   |   | <b>17</b> |

**Fourth Year**

| <b>Fall</b>   | <b>Hours</b> | <b>Spring</b>  | <b>Hours</b> |
|---|--------------|--|--------------|
| 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 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            |
| CHEM 4440   |              | 4 CHEM 4100  | 1            |
| Elective (Advanced) or Advanced FORS minor course for FORS minors <sup>6,7</sup>  |              | 3 CHEM 4367  | 3            |
| HIST 1301 <sup>8</sup>  |              | 3 CHEM 4380  | 3            |
| MATH 3379 or FORS 4317  |              | 3 CRIJ 4385 (or FORS minor course for FORS minors) <sup>6</sup>  | 3            |
|   |              | HIST 1302 <sup>8</sup>   | 3            |
| <b>16</b>   |              | <b>16</b>  |              |

**Total Hours: 126**

<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 II (Mathematics) and the Degree Specific requirement.

<sup>4</sup> Satisfies Core Curriculum requirement for Component Area VIII (Social and Behavioral Sciences). Students who are Forensic Science minors may choose a different Area VIII course, for Criminal Justice minors this course counts both in the core and in the minor.

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

<sup>6</sup> The following minor cannot be paired with this degree program: Minor in Chemistry.

<sup>7</sup> Students who are interested in the graduate programs in Forensic Science at SHSU are encouraged to take BIOL 3470 and either BIOL 4480 or BIOL 4381 as advanced electives. Students seeking licensing as Forensic Analysts are encouraged to take FORS 4317 (or alternatively MATH 3379) to meet statistics requirements to take the licensing exam (the most up to date licensing requirements can be found at <https://www.txcourts.gov/fsc/licensing/>). Course selections in minor and electives must ensure at least 42 advanced hours for degree.

<sup>8</sup> Satisfies the Core Curriculum requirement for Component Area VI (History).

**Notes**

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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, CHEM 4448 and CHEM 4440, and in all required Physics and Mathematics courses.

This sequence has a built-in minor in Criminal Justice, with alternatives for Forensic Science minors listed. Students should use the elective 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 Forensic Chemistry 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.