Forensic Chemistry, B.S.

General Education Foundations

Please use this link to view a list of courses that meet each GEF requirement. (http://registrar.wvu.edu/gef/)

NOTE: Some major requirements will fulfill specific GEF requirements. Please see the curriculum requirements listed below for details on which GEFs you will need to select.

General Education Foundations

F1 - Composition & Rhetoric 3-6
- ENGL 101 Introduction to Composition and Rhetoric
- ENGL 102 and Composition, Rhetoric, and Research
- or ENGL 103 Accelerated Academic Writing

F2A/F2B - Science & Technology 4-6

F3 - Math & Quantitative Reasoning 3-4

F4 - Society & Connections 3

F5 - Human Inquiry & the Past 3

F6 - The Arts & Creativity 3

F7 - Global Studies & Diversity 3

F8 - Focus (may be satisfied by completion of a minor, double major, or dual degree) 9

Total Hours 31-37

Please note that not all of the GEF courses are offered at all campuses. Students should consult with their advisor or academic department regarding the GEF course offerings available at their campus.

Departmental Requirements for the B.S. in Forensic Chemistry

Students must complete WVU General Education Foundations requirements, College B.S. requirements, major requirements, and electives to total a minimum of 120 hours. For complete details on these requirements, visit the B.S. Degrees tab on the Eberly College of Arts and Sciences (http://catalog.wvu.edu/undergraduate/eberlycollegeofartsandsciences/#bachelorofscicnetext) pages.

- **Capstone Requirement:** The university requires the successful completion of a Capstone course. Forensic Chemistry majors must complete FIS 406 (http://catalog.wvu.edu/search/?P=FIS%20406).

- **Writing and Communication Skills Requirement:** The Forensic Chemistry Bachelor of Science is a SpeakWrite Certified Program™. SpeakWrite Certified programs incorporate and develop students’ written, verbal, visual, and mediated communication skills across the curriculum.

- **Calculation of the GPA in the Major:** To graduate with the Forensic Chemistry major, students must achieve a minimum overall GPA of 2.5 in all FIS courses with no grade lower than a C- in any FIS course, or in any course listed in the “STEM Foundations” or “Forensic and Investigative Science Major Requirements” areas below. If a course is repeated, all attempts will be included in the calculation of the GPA unless the course is eligible for a D/F repeat.

- **Internship Requirement:** All students are required to successfully complete the FIS 386 internship course for a minimum of 3 hours of credit.

- **Benchmark Expectations:** For details, go to the Forensic and Investigative Science Degree Progress tab (http://catalog.wvu.edu/undergraduate/eberlycollegeofartsandsciences/forensicandinvestigativescience/#degreeprogresstext).

Curriculum Requirements

<table>
<thead>
<tr>
<th>University Requirements</th>
<th>32</th>
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<tbody>
<tr>
<td>ECAS B.S. Requirements</td>
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<tr>
<td>Departmental Requirements</td>
<td>23</td>
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<tr>
<td>Forensic Chemistry Major Requirements</td>
<td>61</td>
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<tr>
<td>Total Hours</td>
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</table>

University Requirements

General Education Foundations (GEF) 1, 2, 3, 4, 5, 6, 7, and 8 (31-37 Credits)

Outstanding GEF Requirements 1, 4, 5, 6, and 7 18
ECAS Bachelor of Science Requirements

COLLEGE REQUIREMENTS

Global Studies & Diversity Requirement

MATH 155
or MATH 153
& MATH 154
Calculus 1
Calculus 1a with Precalculus
and Calculus 1b with Precalculus

Total Hours

Departmental Requirements

STEM Foundations:

BIOL 115
& BIOL 116
Principles of Biology
and Principles of Biology Laboratory

BIOL 117
& BIOL 118
Introductory Physiology
and Introductory Physiology Laboratory

MATH 156

STAT 215
Introduction to Probability and Statistics

Select one of the following sequences:

PHYS 101
& PHYS 102
Introductory Physics 1
and Introductory Physics

PHYS 111
& PHYS 112
General Physics
and General Physics

Total Hours

Forensic Chemistry Major Requirements

Chemistry

CHEM 115
& 115L
Fundamentals of Chemistry 1
and Fundamentals of Chemistry 1 - Laboratory

or CHEM 117
& CHEM 118
Principles of Chemistry 1
and Principles of Chemistry 2

CHEM 116
& 116L
Fundamentals of Chemistry 1
and Fundamentals of Chemistry 2 - Laboratory

CHEM 215
& 215L
Introductory Analytical Chemistry
and Introductory Analytical Chemistry Laboratory

CHEM 233
& CHEM 235
Organic Chemistry 1
and Organic Chemistry Laboratory

CHEM 234
& CHEM 236
Organic Chemistry 2
and Organic Chemistry Laboratory 2

CHEM 341
& CHEM 342
Physical Chemistry: Brief Course
and Experimental Physical Chemistry

or CHEM 348
& CHEM 349
Physical Chemistry 2
and Physical Chemistry Laboratory

Forensic and Investigative Science

FIS 201
Introduction to Forensic Identification

FIS 202
Crime Scene Investigation Overview

FIS 314
Introduction to Microscopy

FIS 340
Forensic Chemical Analysis

FIS 341
Forensic Chemical Analysis Laboratory

FIS 385
Professional Internship Preparation

FIS 386
Forensic Identification Internship
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<th>Course Title</th>
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<tr>
<td>FIS 404</td>
<td>Law and Evidence</td>
</tr>
<tr>
<td>FIS 460</td>
<td>Analysis of Seized Drugs</td>
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<tr>
<td>FIS 461</td>
<td>Analysis of Seized Drugs Laboratory</td>
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<tr>
<td>FIS 480</td>
<td>Forensic Quality Assurance</td>
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**Forensic Chemistry Electives:**

Select two of the following sequences:

- FIS 414 & FIS 416 Trace Evidence Examination and Trace Evidence Examination Laboratory
- FIS 451 & FIS 452 Arson and Explosives Analysis and Arson and Explosives Analysis Lab
- FIS 470 & FIS 471 Analytical Forensic Toxicology and Analytical Forensic Toxicology Laboratory

**Capstone Experience**

- FIS 406 Court Testimony

**Total Hours** 61

### SUGGESTED PLAN OF STUDY

#### First Year

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<td>FIS 191</td>
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<td>BIOL 115 &amp; BIOL 116 (GEF 2; B.S. First Area 1)</td>
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<td>BIOL 117 &amp; BIOL 118 (B.S. First Area 2; GEF 8)</td>
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<td>FIS 201</td>
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<td>MATH 156</td>
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<td>MATH 155 (B.S. Math Requirement; GEF 3)</td>
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#### Second Year

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<td>ENGL 102 (GEF 1)</td>
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<td>CHEM 233 &amp; CHEM 235</td>
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<td>PHYS 101 or 111</td>
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<td>STAT 215</td>
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<td>PHYS 102 or 112</td>
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#### Third Year

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<th>Hours</th>
<th>Summer</th>
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<tr>
<td>CHEM 215 &amp; 215L</td>
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<td>GEF 5</td>
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<td>FIS 386</td>
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<td>FIS 314</td>
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<td>CHEM 341 &amp; CHEM 342</td>
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<td>FIS 340 &amp; FIS 341</td>
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<td>FIS 460</td>
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<td>FIS 385</td>
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#### Fourth Year

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<td>GEF 6</td>
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<td>GEF 7</td>
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Major Learning Outcomes

FORENSIC CHEMISTRY

Upon graduation from the Forensic Chemistry major, students will be able to:

1. Apply scientific methodology and evaluate techniques in the collection, processing, analysis, and evaluation of forensic evidence.
2. Assess and defend data generated during forensic investigations.
3. Present scientific data in written, verbal, and visual formats.
4. Demonstrate the professionalism and high ethical standards demanded by the justice system and the forensic science community.