

# FORENSIC CHEMISTRY (B.S.)

## Bachelor of Science Program

Program Code: BS-AS

Major Code: FRC

## Chemistry Department

SAMC 164

(716) 878-5204

[chemistry.buffalostate.edu/](http://chemistry.buffalostate.edu/) (<http://chemistry.buffalostate.edu/>)

Forensic Science Education Programs Accreditation Commission (FEPAC) accredited

Forensic chemistry is a program of professional study whose graduates are prepared to assume entry-level positions as forensic scientists in federal, state, local, and corporate laboratories.

## Admission Requirements

Prospective majors must complete CHE 111, CHE 112, CHE 113 and CHE 114 (or the equivalents) with minimum grades of C before applying to the program. Students who have not yet met these requirements will be accepted into the pre-forensic chemistry program (FRCW) and will be formally admitted to the major upon completion of the previously stated requirements.

## Admission Recommendations

Transfer students from two-year colleges should also have earned credit for courses equivalent to

| Code    | Title                                     | Credit Hours |
|---------|---|--------------|
| CHE 201 | ORGANIC CHEMISTRY I                       | 3            |
| CHE 202 | ORGANIC CHEMISTRY II                      | 3            |
| CHE 203 | ORGANIC CHEMISTRY LABORATORY I            | 1            |
| CHE 204 | ORGANIC CHEMISTRY LABORATORY II           | 1            |
| MAT 161 | CALCULUS I                                | 4            |
| MAT 162 | CALCULUS II                               | 4            |
| MAT 163 | USING TECHNOLOGY TO EXPLORE CALCULUS I    | 1            |
| MAT 164 | USING TECHNOLOGY TO EXPLORE CALCULUS II   | 1            |
| PHY 111 | UNIVERSITY PHYSICS I                      | 5            |
| PHY 112 | UNIVERSITY PHYSICS II                     | 5            |
| BIO 211 | INTRODUCTION TO CELL BIOLOGY AND GENETICS | 4            |

to avoid possible delays in the completion of the degree program. Transfer students must complete a minimum of

10 credit hours in chemistry at Buffalo State. Chemistry courses taken elsewhere may be substituted for similar courses at Buffalo State only if they have equivalent prerequisites. Chemistry courses not meeting this criterion may be transferred as elective credit.

Important Note: Individuals seeking an internship or employment in a forensic science laboratory may be required to undergo an extensive background check including a lie detector test, fingerprinting, and drug testing.

## Program Requirements

| Code  | Title                                       | Credit Hours |
|---|---|--------------|
| General Education 23 Requirements ( <a href="http://ecatalog.buffalostate.edu/undergraduate/collegewide-degree-requirements-baccalaureate-degrees/#IF_Courses">http://ecatalog.buffalostate.edu/undergraduate/collegewide-degree-requirements-baccalaureate-degrees/#IF_Courses</a> ) |   |              |
| 33 credit hours   |   | 33           |
| <b>Required Courses in Chemistry (33 credit hours)</b>  |   |              |
| CHE 111   | FUNDAMENTALS OF CHEMISTRY I                 | 3            |
| CHE 112   | FUNDAMENTALS OF CHEMISTRY II                | 3            |
| CHE 113   | LABORATORY FOR FUNDAMENTALS OF CHEMISTRY I  | 1            |
| CHE 114   | LABORATORY FOR FUNDAMENTALS OF CHEMISTRY II | 1            |
| CHE 201   | ORGANIC CHEMISTRY I                         | 3            |
| CHE 202   | ORGANIC CHEMISTRY II                        | 3            |
| CHE 203   | ORGANIC CHEMISTRY LABORATORY I              | 1            |
| CHE 204   | ORGANIC CHEMISTRY LABORATORY II             | 1            |
| CHE 301   | ANALYTICAL CHEMISTRY                        | 4            |
| CHE 331   | PRINCIPLES OF PHYSICAL CHEMISTRY            | 3            |
| CHE 403   | INSTRUMENTAL ANALYSIS                       | 3            |
| CHE 404   | INSTRUMENTAL ANALYSIS LAB                   | 2            |
| CHE 470   | BIOCHEMISTRY I                              | 3            |
| CHE 471   | BIOCHEMICAL TECHNIQUES                      | 2            |
| <b>Required Courses in Forensic Science (19 credit hours)</b>   |   |              |

*Forensic Science*

|         |  |   |
|---------|--|---|
| FOR 122 | SCIENTIFIC CRIMINAL EVIDENCE ANALYSIS      | 3 |
| FOR 312 | CHEMISTRY AND CRIMINALISTICS               | 4 |
| FOR 410 | PROFESSIONAL PRACTICES IN FORENSIC SCIENCE | 3 |

*Advanced Forensic Science*

|            |                               |   |
|------------|-------------------------------|---|
| FOR 414    | FORENSIC CHEMISTRY LABORATORY | 3 |
| FOR 416    | CHEMICAL MICROSCOPY           | 3 |
| or CHE 406 | ANALYTICAL TOXICOLOGY         |   |

*Choose one from the following (Capstone):*

|         |   |   |
|---------|---|---|
| FOR 412 | INTERNSHIP IN CRIMINALISTICS            | 3 |
| FOR 475 | CAPSTONE RESEARCH IN FORENSIC CHEMISTRY | 3 |

**Required Courses in Biology (8 credit hours)**

|            |   |   |
|------------|---|---|
| BIO 211    | INTRODUCTION TO CELL BIOLOGY AND GENETICS | 4 |
| BIO 303    | GENETICS                                  | 4 |
| or BIO 350 | GENES IN POPULATIONS                      |   |

**Upper Division Elective Courses (3-4 credit hours)**

Select at least 3 credit hours from the following: 3-4

|         |   |  |
|---------|---|--|
| ANT 324 | THE HUMAN SKELETON                                |  |
| ANT 325 | FORENSIC ANTHROPOLOGY                             |  |
| BIO 305 | MOLECULAR BIOLOGY                                 |  |
| BIO 308 | SURVEY OF HUMAN ANATOMY AND PHYSIOLOGY            |  |
| BIO 309 | LABORATORY SURVEY OF HUMAN ANATOMY AND PHYSIOLOGY |  |
| BIO 314 | ADVANCED CELL BIOLOGY                             |  |
| BIO 316 | GENERAL MICROBIOLOGY                              |  |
| BIO 450 | RECOMBINANT DNA TECHNOLOGY                        |  |
| CHE 310 | LITERATURE OF CHEMISTRY                           |  |
| CHE 325 | MEDICATIONS                                       |  |
| CHE 360 | INTRODUCTION TO INORGANIC CHEMISTRY               |  |
| CHE 406 | ANALYTICAL TOXICOLOGY (*)                         |  |
| CHE 472 | BIOCHEMISTRY II                                   |  |
| FOR 412 | INTERNSHIP IN CRIMINALISTICS (**)                 |  |
| FOR 416 | CHEMICAL MICROSCOPY (*)                           |  |
| FOR 495 | SPECIAL PROJECT (**)                              |  |
| FOR 497 | FORENSIC MICROCOURSE                              |  |
| GES 360 | FORENSIC GEOSCIENCE                               |  |
| PSY 375 | FORENSIC PSYCHOLOGY                               |  |

**Required Credit Hours Outside the Major (21 credit hours)**

|         |   |   |
|---------|---|---|
| MAT 161 | CALCULUS I                              | 4 |
| MAT 162 | CALCULUS II                             | 4 |
| MAT 311 | INTRODUCTORY PROBABILITY AND STATISTICS | 3 |
| PHY 111 | UNIVERSITY PHYSICS I                    | 5 |
| PHY 112 | UNIVERSITY PHYSICS II                   | 5 |

**All College Electives**

2-3 credit hours 0-2

**Total Credit Hours 120**

\* May not be used as both an Advanced Forensic Science elective and as an elective course in this category.

\*\*May not be used as both a capstone course and as an elective course in this category.

Students will:

1. demonstrate mastery of core knowledge in the area of Analytical Chemistry
2. demonstrate mastery of core knowledge in the area of Organic Chemistry
3. demonstrate mastery of basic concepts in the area of Physical Chemistry
4. demonstrate a mastery of basic concepts in the area of Biochemistry
5. use and understand the theory behind modern laboratory instrumentation
6. demonstrate ability to analyze and evaluate experimental data
7. be knowledgeable concerning safe laboratory practices
8. keep a legible and complete experimental record
9. be able to synthesize and characterize molecules
10. demonstrate adequate technical report writing skills
11. use a personal computer to analyze and collect scientific data
12. demonstrate adequate oral presentation skills
13. be prepared for a career in forensic chemistry or for advanced studies in Forensic Chemistry