

# FORENSIC SCIENCE, BACHELOR OF SCIENCE (B.S.)

The Forensic Science degree program at EKU is a comprehensive science-based undergraduate education that prepares students to become leaders in the forensic science discipline. Forensic analytical work requires patience and diligence, with attention to detail and high-quality standards that will stand up in court. A forensic scientist must be able to communicate effectively, both orally and in writing, have personal integrity and high ethical standards, and have no history of drug abuse or criminal activity. Because the program provides a strong knowledge base and skill set in both molecular biology and analytical chemistry, graduates can also pursue careers in a variety of laboratory settings in industry, academic research labs, environmental work, or pharmaceutical science.

The program offers two options:

1. Forensic Chemistry and
2. Forensic Biology.

The Forensic Chemistry option of the Forensic Science degree prepares analysts to use analytical chemistry to examine evidence in the crime laboratory. Forensic Chemistry graduates will typically work in trace evidence, toxicology, drug identification, or firearm sections of the crime laboratory. The Forensic Biology option of the Forensic Science degree prepares students to work in areas of a forensic laboratory requiring a knowledge of genetics, molecular biology, and analytical chemistry. The forensic biologist applies scientific knowledge and skills to solve complex real-life problems in DNA analysis in support of investigative work. Forensic Biology graduates will typically work in the DNA/serology sections of the forensic laboratory.

## Admission/Progression Criteria

All forensic science majors utilize the regular admission policy of the University for students taking courses offered during the first 60 earned hours of the program. In order to continue in the program after 60 earned hours, the student must maintain an overall earned GPA of 2.50 or better on a 4.0 scale. Students who fail to meet this criterion will be removed from the Forensic Science degree program and placed in the B.S. Chemistry, Chemistry Option, degree program.

## Program Requirements

CIP Code: 40.0510

### Major

- Forensic science majors have a graduation requirement of an overall earned GPA of 2.5/4.0 or better.
- The curriculum below produces a degree that meets the guidelines for accreditation by the Forensic Science Education Programs Accreditation Commission (FEPAC) of the American Academy of Forensic Science (AAFS).

Code	Title	Hours
<b>University Graduation Requirements</b>		
General Education ( <a href="http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/">http://catalogs.eku.edu/undergraduate/general-academic-information/general-education-requirements/</a> )		36
<i>Foundations of Learning</i>		
GSD 101	Foundations of Learning	3

Upper division courses (42 hrs. distributed throughout Major/Supporting/Gen Ed/Free Electives categories)

<b>Major Requirements</b>		
<i>Core Courses</i>		
CHE 111 & 111L	General Chemistry and General Chemistry Lab I	4
CHE 112 & 112L	General Chemistry II and General Chemistry Lab	4
CHE 361 & 361L	Organic Chemistry I and Organic Chemistry Lab I	4
CHE 362 & 362L	Organic Chemistry II and Organic Chemistry Lab II	4
CHE 430	Biochemistry of Macromolecules	3
FOR 301	Introduction to Forensic Science	3
FOR 401	Forensic Professional Practice	1
FOR 431	DNA Profiling	3
FOR 451 & 451L	Forensic Microscopic Analysis and Forensic Microscopy Lab	3
FOR 465	Expert Witness Testimony	3
FOR 499	Forensic Science Capstone	3
BIO 111 & 111L	Cell and Molecular Biology and Cell and Molecular Biology Lab	4
MAT 234	Calculus I	4
PHY 132	College Physics II	5
	or PHY 202 University Physics II	
<b>Concentrations</b>		
Students must select one of the following Concentrations:		28
Forensic Chemistry		
Forensic Biology		
<i>Supporting Course Requirements</i>		
BIO 112 & 112L	Ecology and Evolution and Ecology and Evolution Lab (Element 4) <sup>G</sup>	4
PHY 131	College Physics I (Element 4) <sup>G</sup>	5
	or PHY 201 University Physics I	
STA 215	Introduction to Statistical Reasoning (Element 2) <sup>G</sup>	3-4
	or STA 270 Applied Statistics	
<i>Free Electives</i>		1-2
<b>Total Hours</b>		<b>120</b>

<sup>G</sup> Course also satisfies a General Education element. Hours are included within the 36 hr. General Education requirement above.

### Forensic Biology Concentration

Code	Title	Hours
<b>Concentration Courses</b>		
BIO 315	Genetics	4
BIO 320	Principles of Microbiology	4
BIO 331	Cell Biology	3
BIO 531	Principles of Molecular Biology	4
CHE 432	Biochemistry Laboratory	1
FOR 330	Bloodstain Pattern Analysis	1
FOR 431L	DNA Profiling Lab	1
FOR 432	Forensic Serology	1
<i>Electives</i>		

Choose from nine hours of the following: 9

ANT 306	Human Evolution
ANT 380	Forensic Anthropology
ANT 385	Human Osteology
BIO 208 & 208L	Human Anatomy and Physiology I and Human Anatomy & Physio I Lab
BIO 308 & 308L	Human Anatomy and Physiology II and Human Anatomy and Physiology II Lab
BIO 348	Vertebrate Physiology
BIO 527	Immunology
BIO 528	Virology
BIO 533	Bioinformatics: Principles and Applications
BIO 535	Pathogenic Microbiology
BIO 546	Histology
CHE 325 & 325L	Analytical Chemistry and Analytical Chemistry Lab
CHE 431	Metabolic Biochemistry
CHE 401	Chemtopics: _____
CHE 401L	Chemtopics Lab: _____
CHE 420	Mass Spectrometry
FOR 310	Training for Forensic Internships
FOR 349	Applied Learning in Forensic Science (highly recommended) <sup>1</sup>
FOR 412 & 412L	Forensic Trace Evidence and Forensic Trace Evidence Lab
FOR 442 & 442L	Forensic Toxicology & Drugs and Drugs & Toxicology Lab
FOR 460	Selected Topics in Forensic Science
FOR 490	Introduction to Research
PLS 316	Criminal Evidence
Choose from one of the following:	
CHE 425 & 425L	Instrumental Analysis and Instrumental Analysis Lab
FOR 411 & 411L	Instrumental Analysis and Forensic Instrumental Lab

**Total Hours** 28

## Forensic Chemistry Concentration

Code	Title	Hours
<b>Concentration Courses</b>		
CHE 325 & 325L	Analytical Chemistry and Analytical Chemistry Lab	5
CHE 420	Mass Spectrometry	3
CHE 471 & 471L	Principles of Physical Chemistry I and Principles of Physical Chemistry I Lab	4
FOR 412 & 412L	Forensic Trace Evidence and Forensic Trace Evidence Lab	4
FOR 442 & 442L	Forensic Toxicology & Drugs and Drugs & Toxicology Lab	4
Choose from one of the following:		4
CHE 425 & 425L	Instrumental Analysis and Instrumental Analysis Lab	
FOR 411 & 411L	Instrumental Analysis and Forensic Instrumental Lab	

## Electives

Choose from four hours of the following: 4

CHE 349	Applied Learning in Chemistry <sup>1</sup>
CHE 349	Applied Learning in Chemistry (A-N) <sup>1</sup>
CHE 401	Chemtopics: _____
CHE 401L	Chemtopics Lab: _____
CHE 432	Biochemistry Laboratory
CHE 450	Inorganic Chemistry
FOR 310	Training for Forensic Internships
FOR 330	Bloodstain Pattern Analysis
FOR 349	Applied Learning in Forensic Science (highly recommended) <sup>1</sup>
FOR 431L	DNA Profiling Lab
FOR 460	Selected Topics in Forensic Science
FOR 490	Introduction to Research
FSE 350	Fire Arson and Explosion Investigation
FSE 380	Failure Analysis
PLS 316	Criminal Evidence

**Total Hours** 28

<sup>1</sup> The internship (FOR 349 Applied Learning in Forensic Science) in a forensic science laboratory is an elective but highly recommended. Students interested in internship must complete FOR 310 Training for Forensic Internships before FOR 349 Applied Learning in Forensic Science.