BACHELOR OF SCIENCE IN APPLIED SCIENCE IN FORENSIC SCIENCE

Forensic Science Program

Youngstown State University offers an undergraduate degree, the Bachelor of Science in Applied Science in Forensic Science. This is a multidisciplinary program drawing upon Criminal Justice, Forensic Science, Biological Sciences, Chemical Sciences, Sociology, and Anthropology. The program is housed in the Department of Chemical and Biological Sciences. Forensic science can be broadly defined as the application of science to law. This program is designed to give students both a theoretical and practical background in the scientific, legal, and investigative aspects of forensic science. Graduates of the program are prepared for continued education in graduate programs or for immediate employment in forensic science-related facilities. Many careers in or related to forensic science require academic preparation beyond the undergraduate level. Students should be prepared to pursue advanced degrees within their discipline.

Admission Policy

Students wishing to transfer into the forensic science program must have and maintain a cumulative GPA of at least 2.5. Note: individuals with a felony, drug, and/or domestic violence conviction will experience difficulty gaining employment in the fields of forensic science and/or criminal justice. Students with misdemeanor convictions or juvenile sex offense convictions should seek advice from an advisor.

Internships

YSU’s Forensic Science program requires a six-semester hour internship experience which will provide students with the opportunity to integrate academic studies with the daily operations of a forensic science related facility. Each semester hour requires approximately 45 on-site hours. Internships also foster the development of networking relationships with practitioners who can assist in procuring future employment. Certain criminal convictions may prohibit students from being eligible for an internship experience.

For more information, visit the Forensic Science Program. (https://ysu.edu/academics/science-technology-engineering-mathematics/forensicsciencemajor/)

A Bachelor of Science in Applied Science degree in Forensic Science requires a minimum of 121 semester hours. The program is designed to be rigorous and multi-disciplinary, and allows for fewer electives in lower level courses but an increased flexibility in upper-division coursework. Students must complete the following coursework within their first 3 semesters at YSU, and must maintain at least a 2.5 GPA in order to remain in the FS program:

- HAHS 1500 - Introduction to BCHHS
- ENGL 1550 - Writing I
- CRJS 1500 - Introduction to Criminal Justice
- FSCI 1510 - Survey of Forensic Science
- CHEM 1515 - General Chemistry I
- CHEM 1515L - General Chemistry I Laboratory
- Two MATH courses, which may include MATH 1510, MATH 1510C, MATH 1511, MATH 1511C, MATH 1571, MATH 1572

Professor

Susan Ann Clutter, M.F.S., Associate Professor

Robert E. Wardle III, M.S., Associate Professor

A minor is intended to contrast with or deepen a major or General Education. Forensic Science is an interdisciplinary major. Courses that are required for, and count toward, the Forensic Science major cannot be counted toward a minor.

COURSE | TITLE | S.H.
--- | --- | ---
FIRST YEAR REQUIREMENT - STUDENT SUCCESS
YSU 1500 | Success Seminar | 1:2
or SS 1500 | Strong Start Success Seminar | 1:2
or HONR 1500 | Intro to Honors | 1:2

General Education Requirements

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1550</td>
<td>Writing 1</td>
<td>3-4</td>
</tr>
<tr>
<td>or ENGL 1549</td>
<td>Writing 1 with Support</td>
<td>3-4</td>
</tr>
<tr>
<td>ENGL 1551</td>
<td>Writing 2</td>
<td>3</td>
</tr>
<tr>
<td>CMST 1545</td>
<td>Communication Foundations</td>
<td>3</td>
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</table>

Mathematics

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>MATH 1571</td>
<td>Calculus 1 (required for major)</td>
<td>4</td>
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</tbody>
</table>

Arts and Humanities (2 courses)

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>Social and Personal Awareness (2 courses)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Natural Science (2 courses; 1 with lab) met with BIOL 2601 and 2602</td>
<td></td>
<td>6</td>
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<tr>
<td>BIOL 2601 &amp; 2601L</td>
<td>General Biology: Molecules and Cells and General Biology: Molecules and Cells Laboratory (required for major)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 2602 &amp; 2602L</td>
<td>General Biology: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory (required for major)</td>
<td>4</td>
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<tr>
<td>Social Sciences (2 courses) met with CJFS 1500 and ANTH 1500</td>
<td></td>
<td>3</td>
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<tr>
<td>CRJS 1500</td>
<td>Introduction to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 1500</td>
<td>Introduction to Anthropology (required for major)</td>
<td>3</td>
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Core Requirements (65 s.h.)

Chemistry

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1515 &amp; 1515L</td>
<td>General Chemistry 1 and General Chemistry 1 Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1516 &amp; 1516L</td>
<td>General Chemistry 2 and General Chemistry 2 Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 3719 &amp; 3719L</td>
<td>Organic Chemistry 1 and Organic Chemistry 1 Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 3720 &amp; 3720L</td>
<td>Organic Chemistry 2 and Organic Chemistry 2 Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 2604 &amp; 2604L</td>
<td>Quantitative Analysis and Quantitative Analysis Laboratory</td>
<td>5</td>
</tr>
</tbody>
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Additional Biology

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>BIOL 3721</td>
<td>Genetics</td>
<td>3</td>
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Physics

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>PHYS 2610 &amp; 2610L</td>
<td>General Physics 1 and General Physics Laboratory 1</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 2611 &amp; 2611L</td>
<td>General Physics 2 and General Physics Laboratory 2</td>
<td>5</td>
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Mathematics & Statistics

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>STAT 3717</td>
<td>Statistical Methods</td>
<td>4</td>
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<tr>
<td>MATH 1572</td>
<td>Calculus 2</td>
<td>4</td>
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</tbody>
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Criminal Justice and Forensic Sciences

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>FSCI 1510</td>
<td>Survey of Forensic Sciences</td>
<td>3</td>
</tr>
<tr>
<td>CRJS 2602</td>
<td>Criminal Courts</td>
<td>3</td>
</tr>
<tr>
<td>FSCI 3714</td>
<td>Forensic Science: Crime Scene Investigation</td>
<td>2</td>
</tr>
<tr>
<td>FSCI 3716</td>
<td>Forensic Science Evidence Analysis</td>
<td>2</td>
</tr>
<tr>
<td>FSCI 3700</td>
<td>Forensic Fire and Explosive Investigation</td>
<td>3</td>
</tr>
<tr>
<td>FSCI 4850</td>
<td>Special Topics in Forensics Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>
Bachelor of Science in Applied Science in Forensic Science

Concentrations (Pick One -Biology, Chemistry or Anthropology) 13-16

CHEMISTRY (Select at least 13 s.h.)

CHEM 3729 Inorganic Chemistry
CHEM 3739 Physical Chemistry 1 & 3739L and Physical Chemistry 1 Laboratory
CHEM 3740 Physical Chemistry 2 & 3740L and Physical Chemistry 2 Laboratory
CHEM 3764 Chemical Toxicology
CHEM 3785 Biochemistry 1 & 3785L and Biochemistry Laboratory
CHEM 3786 Biochemistry 2
CHEM 4891 Special Topics
CHEM 5804 Chemical Instrumentation & 5804L and Chemical Instrumentation Laboratory
CHEM 5821 Intermediate Organic Chemistry
CHEM 5822 Advanced Organic Laboratory & 5822L and Advanced Organic Laboratory

BIOLOGY (Select at least 13 s.h.)

BIOL 3702 Microbiology
BIOL 3703 Clinical Immunology & 3703L and Clinical Immunology Laboratory
BIOL 3705 Introduction to Human Gross Anatomy & 3705L and Introduction to Human Gross Anatomy Laboratory
BIOL 3711 Cell Biology: Fine Structure
BIOL 3716 Molecular Microbiology 1: Nucleic Acids
BIOL 3730 Human Physiology & 3730L and Human Physiology Laboratory
BIOL 4800 Bioinformatics & 4800L and Bioinformatics Laboratory
BIOL 4839 Selected Topics in Physiology
CHEM 3785 Biochemistry 1 & 3785L and Biochemistry Laboratory
CHEM 3786 Biochemistry 2
BIOL 4850 Problems in Biology

ANTHROPOLOGY (Select at least 16 s.h.)

ANTH 2600 Human Osteology
ANTH 3702 Archaeology
ANTH 3703 Biological Anthropology
ANTH 3778 Archaeological Techniques
ANTH 3779 Fieldwork in Historical and Industrial Sites Archaeology
ANTH 3780 Forensic Anthropology 1
ANTH 4800 Undergraduate Research
ANTH 4881 Forensic Anthropology 2
ANTH 4883 Case Studies in Forensic Anthropology
ANTH 4891 Advanced Topics in Biological Anthropology
BIOL 3705 Introduction to Human Gross Anatomy & 3705L and Introduction to Human Gross Anatomy Laboratory
GEOG 5812 Global Positioning Systems and GIScience

Electives to meet 120 hours 1

Optional courses (not a track)

BIOL 4890 Molecular Genetics & 4890L and Molecular Genetics Laboratory
BIOL 5827 Gene Manipulation
FSCI 4850 Special Topics in Forensic Sciences
CHEM 3719R Organic Chemistry Recitation 1

CHEM 3720R Organic Chemistry Recitation 2
PHLT 3731 Drug Use and Abuse
PHLT 5810 Agents of Mass Casualty
PHLT 5812 Crisis Management in Public Health

Total Semester Hours 121-135

There may be other courses that qualify for upper division electives, but you must discuss these options with an academic advisor and get pre-approved.

Year 1

Fall S.H.
YSU 1500 Success Seminar 1
ENGL 1550 or ENGL 1549 Writing 1 or Writing 1 with Support 3-4
FSCI 1510 Survey of Forensic Sciences 3
CRJS 1500 Introduction to Criminal Justice 3
CHEM 1515 General Chemistry 1 & 1515L and General Chemistry 1 Laboratory 4
Arts and Humanities Elective 3

Semester Hours 17-18

Spring
ENGL 1551 Writing 3 3
CRJS 2602 Criminal Courts 3
ANTH 1500 Introduction to Anthropology 3
CHEM 1516 General Chemistry 2 & 1516L and General Chemistry 2 Laboratory 4
Social and Personal Awareness 3

Semester Hours 16

Year 2

Fall
CMST 1545 Communication Foundations 3
FSCI 3711 Forensic Science: Crime Scene Investigation 2
FSCI 3714L Forensic Science CSI Lab 1
MATH 1571 Calculus 1 4
CHEM 3719 Organic Chemistry 1 & 3719L and Organic Chemistry 1 Laboratory 4

Semester Hours 14

Spring
FSCI 3700 Forensic Fire and Explosive Investigation 3
FSCI 3716 Forensic Science Evidence Analysis 1
FSCI 3716L Forensic Science Evidence Analysis 1 Laboratory
MATH 1572 Calculus 2 4
CHEM 3720 Organic Chemistry 2 & 3720L and Organic Chemistry 2 Laboratory 4

Semester Hours 14

Year 3

Fall
BIOL 2601 General Biology: Molecules and Cells & 2601L and General Biology: Molecules and Cells Laboratory 4
FSCI 4850 Special Topics in Forensic Sciences 3
STAT 3717 Statistical Methods 4
Elective 3700-Level 5

Semester Hours 16

Spring
BIOL 2602 General Biology: Organisms and Ecology & 2602L and General Biology: Organisms and Ecology Laboratory 4
Learning Outcomes

1. Students will demonstrate knowledge on the influence of the CJ system at the subsystem levels (policing, courts, and corrections).
2. Students can analyze scientific situations, and apply the scientific method within the CJ judicial system.
3. Students can explain biology principles and how they relate to forensic science.
4. Students can explain chemistry principles and how they relate to forensic science.
5. Students can explain basic physics and math principles, and how they relate to forensic science.

FSCI 1510 Survey of Forensic Sciences 3 s.h.
Overview of history, evolution, and current status. Discussion of training, education, certification, accreditation, and legal issues. Designed to be accessible to students without a science background and provide an introduction to forensic science for those considering further studies.

FSCI 3700 Forensic Fire and Explosive Investigation 3 s.h.
Principles of fire science including fire detection, suppression, and investigation of both fire and explosion scenes. Special emphasis on concepts of fire progression, cause and origin determinations, arson investigation, and bombings.
Prereq.: CRJS 1500 or FSCI 1510.

FSCI 3714 Forensic Science: Crime Scene Investigation 2 s.h.
An introduction to the legal and practical aspects of crime scene investigation. Emphasis on the value of physical evidence and the skills and tools needed to recognize, collect and preserve physical evidence found at a crime scene.
Prereq.: FSCI 1510 and sophomore standing.
Concurrent with: FSCI 3714L.

FSCI 3714L Forensic Science CSI Lab 1 s.h.
Laboratory section designed to teach the practical skills employed by criminalists collecting evidence at a crime scene. Students will gain experience using tools, techniques and procedures required to recognize and collect evidence by completing practical exercises.
Prereq.: FSCI 1510 and sophomore standing.
Coreq.: FSCI 3714.