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 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
ENGL 1550 | Writing 1 | 3-4
or ENGL 1549 | Writing 1 with Support | 3-4
ENGL 1551 | Writing 2 | 3
CMST 1545 | Communication Foundations | 3

Mathematics
MATH 1571 | Calculus 1 (required for major) | 4

Arts and Humanities (2 courses)
Social and Personal Awareness (2 courses)
Natural Science (2 courses; 1 with lab)

Biology
BIOL 2601 & 2601L | General Biology: Molecules and Cells and General Biology: Molecules and Cells Laboratory (required for major) | 4
BIOL 2602 & 2602L | General Biology: Organisms and Ecology and General Biology: Organisms and Ecology Laboratory (required for major) | 4

Social Sciences (2 courses) | Met with CJFS 1500 and ANTH 1500

Chemistry
CHEM 1515 & 1515L | General Chemistry 1 and General Chemistry 1 Laboratory | 4
CHEM 1516 & 1516L | General Chemistry 2 and General Chemistry 2 Laboratory | 4
CHEM 3719 & 3719L | Organic Chemistry 1 and Organic Chemistry 1 Laboratory | 4
CHEM 3720 & 3720L | Organic Chemistry 2 and Organic Chemistry 2 Laboratory | 4
CHEM 2604 & 2604L | Quantitative Analysis and Quantitative Analysis Laboratory | 5

Biology
BIOL 3721 | Genetics | 3

Mathematics & Statistics
STAT 3717 | Statistical Methods | 4
MATH 1572 | Calculus 2 | 4

Criminal Justice and Forensic Sciences
FSCI 1510 | Survey of Forensic Sciences | 3
CRJS 2500 | Criminal Courts | 3
FSCI 3714 | Forensic Science: Crime Scene Investigation | 2
FSCI 3716 | Forensic Science Evidence Analysis | 2
FSCI 3700 | Forensic Fire and Explosive Investigation | 3
FSCI 4850 | Special Topics in Forensics | 3
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
  & 3702L and Microbiology Laboratory
- 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

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.
- CRJS 1500 Introduction to Criminal Justice 3
- CHEM 1510 Survey of Forensic Sciences 3
- ART 1516L Introduction to Anthropology 4
- FSCI 1510 General Chemistry 1
  & 1516L and General Chemistry 1 Laboratory
- CMST 1545 Arts and Humanities Elective 3

Year 2

Fall  S.H.
- CMST 1545 Communication Foundations 3
- CRJS 2602 Criminal Courts 3
- FSU 1500 Introduction to Anthropology 3
- CHEM 1516 General Chemistry 2
  & 1516L and General Chemistry 2 Laboratory
- SOC 1515 Social and Personal Awareness 3

Year 3

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

Spring  S.H.
- BIOL 2602 General Biology: Organisms and Ecology
  and General Biology: Organisms and Ecology Laboratory

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
Bachelor of Science in Applied Science in Forensic Science

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 Science 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 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.

FSCI 3716 Forensic Science Evidence Analysis 2 s.h.
Serves as an introduction to the techniques, instrumentation and procedures used in the examination and analysis of physical evidence in a forensic laboratory setting and the legal aspects regarding the use of laboratory reports in the investigation process.
Prereq.: FSCI 3714, FSCI 3714L.
Concurrent with: FSCI 3716L.

FSCI 3716L Forensic Science Evidence Analysis Laboratory 1 s.h.
Laboratory section designed to familiarize students with the tools commonly used in the examination and analysis of physical evidence. Students will gain experience with the instrumentation, techniques, and procedures used for examining physical evidence through a variety of practical exercises.
Prereq.: FSCI 3714, FSCI 3714L.
Coreq.: FSCI 3716.

FSCI 3720 Forensic Fire and Explosive Investigation 3 s.h.
Forensic Fire and Explosives Investigation. Principles of fire science including fire detection and investigation of both fire and explosion scenes. Special emphasis on concepts of fire progression, origin and cause determinations, arson investigation, accidental explosions, and bombings.
Prereq.: FSCI 3714 with grade of C or higher, or junior status, or permission of forensic coordinator.

FSCI 4850 Special Topics in Forensic Sciences 3 s.h.
Contemporary issues in criminal justice. Topics are announced prior to enrollment.
Prereq.: Senior standing or permission of instructor.

FSCI 4852 Trace Evidence 3 s.h.
Teaches search methods, recovery procedures, and laboratory analysis for hairs, fibers, and other types of trace evidence in criminal investigations and prosecutions. Emphasis is on major cases that hinged on trace evidence, and the legal and ethical future of trace evidence. Some laboratory exercises with microscopes are included.
Prereq.: FSCI 3714 or concurrent or permission from instructor.

FSCI 4853 Forensic Firearms Examination 3 s.h.
This course features discussion on the forensic science involved in firearms examination, to include gun manufacturing, the physics of ballistics, gunpowder and gun primer residue analysis, serial number restoration, and shooting reconstruction. Legislation concerning handguns and other weapons in the US will also be covered.
Prereq.: FSCI 3714 or concurrent or permission from Instructor.

FSCI 4854 Death Investigation 3 s.h.
A broad overview exploring the various facets of medicolegal death investigation including discussion of history, standard procedures, methods and techniques, safety, scene documentation, cause and manner of death determination, autopsy, toxicological analysis, and other issues related to the discipline. Course content will include graphic images, descriptions, and discussion. May include depictions of a sexual nature, nudity, the aftermath of violent actions, and/or catastrophe.
Prereq.: Junior standing or permission of instructor.

FSCI 5814 Practice and Ethics in Forensic Science 3 s.h.
Overview of the forensic science discipline as it relates to the criminal justice system including discussion of legal aspects, constitutional considerations, expert testimony, the role of the expert witness, and ethical standards and dilemmas. Also includes discussion of current events and the evolution and future of the forensic sciences.
Prereq.: FSCI 3714 and FSCI 3714L.
Gen Ed: Capstone.

Request a Graduation Evaluation after you have completed 80-85 s.h. from the BCHHS Advising/Deans Office, 2104 Cushwa Hall, 330-941-3221.