

FORENSIC SCIENCE

About Us

Forensic scientists analyze and evaluate evidence in criminal investigations. This evidence may include DNA from bodily fluids or other cells, drugs in different forms or in bodily fluids, firearms/weapons, and a variety of other types of evidence. A strong background in natural sciences, especially biology, chemistry or anthropology, allows the scientist to apply their knowledge to these analyses. The Forensic Science Program at Loyola University Chicago emphasizes natural science coursework and builds other necessary skills including critical thinking, ethics, strong analytical abilities, and written and oral communication.

Students pursuing the BS in Forensic Science (<https://catalog.luc.edu/undergraduate/arts-sciences/forensic-science/forensic-science-bs/>) at Loyola University Chicago benefit from expert faculty and state-of-the-art facilities, preparing them for careers in a variety of occupational settings. Apply today!

Program Mission Statement

Provide Loyola University Chicago students with a solid foundation in the natural sciences, educate students in a broad range of forensic analytical techniques from a generalist perspective, educate students in the various aspects of forensic science professional practice, emphasize the importance of critical thinking skills in approaching forensic science problems, and prepare students for entry level positions in forensic science laboratories and graduate or professional schools in the forensic sciences.

Advisory Board

In keeping with our mission, the Forensic Science Program has an advisory board made up of administrators from forensic laboratories.

The relationships with these laboratories allows the Forensic Science Program to provide our graduates with the most relevant education, skills, and abilities to gain employment. Advisory Board members are regional and national leaders, active within their respective disciplines. Members are from the Illinois State Police Forensic Science Center at Chicago, Northeastern Illinois Regional Crime Laboratory, DuPage County Crime Laboratory, Idaho State Police, US Drug Enforcement Administration-North Central Regional Laboratory, US Internal Revenue Service-National Laboratory, US Food and Drug Administration-Forensic Chemistry Center, and United States Drug Testing Laboratories, Inc.

Undergraduate Programs

- Forensic Science (BS) (<https://catalog.luc.edu/undergraduate/arts-sciences/forensic-science/forensic-science-bs/>)

Undergraduate Policies and Procedures

Please see Undergraduate Policies and Procedures (<https://catalog.luc.edu/undergraduate-academic-standards-regulations/>) for academic policies that supersede those of academic units within the University.

Forensic Science (FRSC)

FRSC 340 Introduction to Forensic Science (3 Credit Hours)

Pre-requisites: CJC 101; Forensic Science Majors Only

This course provides an overview of the basic principles and uses of forensic science within the field of criminal justice. The course is designed for forensic science majors emphasizing the scientific aspects in the forensic sciences.

Interdisciplinary Option: Forensic Science

Outcomes:

Students will be able to identify the uses and limitations of the existing forensic science techniques used within the field of criminal justice

FRSC 341 Forensic Ethics and Professional Practice (3 Credit Hours)

Pre-requisites: FRSC 340; Forensic Science Majors only

This course develops a basic scientific literacy, understanding of the scientific method of inquiry, understanding ethical thought and application of ethics to the field and professional practice of forensic science.

Interdisciplinary Option: Forensic Science

Outcomes:

Students will demonstrate an understanding and application of ethics in the forensic sciences; Students will be able to articulate the role and challenges of ethical issues facing forensic science today, the applicability of ethics in the profession and their individual careers

FRSC 342 Expert Witness Testimony and Court Room Demeanor (3 Credit Hours)

Pre-requisites: FRSC 341; Forensic Science Majors Only

The goal for this course is to give you the information necessary to be an effective and ethical witness. This should help throughout your career and help make testimony not so much something to be feared as something which represents the culmination of your work in a case.

Interdisciplinary Option: Forensic Science

Outcomes:

Students should develop courtroom and expert witness testimony literacy, understanding of the dynamics during court and appreciate the impact to the judicial system

FRSC 343 Physical Organic Chemistry for Forensic Science (3 Credit Hours)

Pre-requisites: PHYS 112; MATH 132; CHEM 222 or (CHEM 224 and CHEM 226) or (CHEM 240, CHEM 241, CHEM 260, and CHEM 272); and Forensic Science majors

An introduction to the foundational principles of physical and physical organic chemistry. The course focuses on the application of these principles to solving problems in forensic science. The numerous aspects of forensic science require a working knowledge of physical chemistry, the foundational principles, and the interrelation of cause and effect.

Outcomes:

Understand the basic concepts of physical and physical organic chemistry; Acquire and interpret data and form conclusions; and Use critical thinking skills in problem solving

FRSC 350 Pattern Evidence I (3 Credit Hours)

Pre-requisites: FRSC 341; Forensic Science Majors only

This course introduces the basic principles and methods of forensic pattern evidence: latent fingerprints, firearms and tool marks, and questioned documents.

Interdisciplinary Option: Forensic Science

Course equivalencies: X-CRMJ382/FRSC382

Outcomes:

Students will demonstrate an understanding of the three (3) forensic pattern evidence areas; Students will develop techniques, work on non-probative cases, and written formal reports of findings

FRSC 350L Pattern Evidence Lab I (1 Credit Hour)

Co-requisites: FRSC 350; Forensic Science Majors only

This course introduces the basic laboratory methods of forensic pattern evidence: latent prints, firearms and toolmarks, and questioned documents. Prerequisite or

Interdisciplinary Option: Forensic Science

Outcomes:

Students will demonstrate a basic competency through development of various techniques; Students will work non-probative cases, along with written formal reports of their findings

FRSC 360 Forensic Drug Chemistry I (3 Credit Hours)

Pre-requisites: (CHEM 212, CHEM 214, CHEM 224, and CHEM 226) or (CHEM 241, CHEM 272, and CHEM 280); FRSC 342 and Forensic Science majors

This course provides an introduction to the basic principles of forensic drug analysis. The use of microscopic, chemical, and chromatographic techniques to gather data, interpret results and form conclusions are developed. Recognizing the strengths and weaknesses in the techniques used and the correct interpretation of results is stressed.

Interdisciplinary Option: Forensic Science

Course equivalencies: CHEM 316/FRSC 360

Outcomes:

The techniques, skills, advances and limitations of the modern forensic laboratory discussed; The students will be able to summarize basic concepts of forensic drug analysis, testing, and formal reporting

FRSC 360L Forensic Drug Chemistry Laboratory I (2 Credit Hours)

Pre-requisites: (CHEM 212, CHEM 214, CHEM 224, and CHEM 226) or (CHEM 241, CHEM 272, and CHEM 280); FRSC 342 and Forensic Science majors

Co-requisites: FRSC 360

This course provides both basic and advanced foundations to the principles of forensic drug analysis. The use of basic and advanced analytical techniques to gather data, interpret results and form conclusions are developed. Additionally, national forensic laboratory operational standards and requirements are incorporated.

Interdisciplinary Option: Forensic Science

Course equivalencies: CHEM 316L/FRSC 360L

Outcomes:

The techniques, skills, advances and limitations of the modern forensic laboratory will be discussed; The students will be able to demonstrate basic/advanced concepts of forensic drug analysis, testing, and formal reporting

FRSC 361 Forensic Toxicology I (3 Credit Hours)

Pre-requisites: FRSC 360/360L; Co-requisite FRSC 361L; Forensic Science Majors Only

This course stresses the practical and theoretical aspects to forensic toxicology, the study of drugs and their implications in a forensic setting when toxicity sets in. The analysis and description of drugs are introduced. Case studies are reviewed where drug use may become a forensic matter.

Interdisciplinary Option: Forensic Science

Course equivalencies: CHEM 315/FRSC 361

Outcomes:

Students should develop basic scientific literacy, understanding of the scientific method of inquiry, understanding ethical thought and application of ethics to the field of forensic toxicology

FRSC 361L Forensic Toxicology Laboratory I (1 Credit Hour)

Pre-requisites: FRSC 360/360L; Corequisite: FRSC 361; Forensic Science Majors Only

This course stresses the practical and theoretical aspects to forensic toxicology, the study of drugs and their implications in a forensic setting when toxicity sets in. The analysis and description of drugs are introduced. Case studies are reviewed where drug use may become a forensic matter.

Interdisciplinary Option: Forensic Science

Outcomes:

The techniques, skills, advances and limitations of the modern forensic laboratory discussed; The students will be able to summarize basic concepts of forensic drug analysis, testing, and formal reporting

FRSC 370 Forensic Biology (3 Credit Hours)

Pre-requisites: FRSC 341, BIOL 102 and 112; Corequisite: FRSC 370L; Forensic Science Majors Only

This course stresses the practical and theoretical aspects to forensic biology. Forensic biology includes the examination, identification, and characterization of biological materials found on various types of evidence.

Interdisciplinary Option: Forensic Science

Outcomes:

Students should develop basic scientific literacy, understanding of the scientific method of inquiry, understanding ethical thought and application of ethics to the field of forensic biology

FRSC 370L Forensic Biology Laboratory (1 Credit Hour)

Pre-requisites: FRSC 341, BIOL 102 and 112; Corequisite: FRSC 370; Forensic Science Majors Only

This course stresses the practical and theoretical aspects to forensic biology. Forensic biology includes the examination, identification, and characterization of biological materials found on various types of evidence.

Interdisciplinary Option: Forensic Science

Outcomes:

Students should develop basic scientific literacy, understanding of the scientific method of inquiry, understanding ethical thought and application of ethics to the field of forensic biology

FRSC 371 Forensic Molecular Biology Lecture and Laboratory (5 Credit Hours)

Pre-requisites: BIOL 282, BIOL 283, FRSC 342, FRSC 370, FRSC 370L;
Forensic Science Majors only - Biology/DNA Option

This course prepares students to work in forensic DNA analysis. The lectures cover the basic aspects of DNA structure and function while the laboratory gives students experience with the techniques and instruments used in forensic DNA analysis.

Interdisciplinary Option: Forensic Science

Course equivalencies: BIOL 391/FRSC 371

Outcomes:

Students will have a strong theoretical understanding of STR marker origin, population biology, and legal uses, and will be able to isolate and process DNA for STR scoring

FRSC 390 Forensic Science Internship (3-4 Credit Hours)

Pre-requisites: FRSC 342; Forensic Science Majors Only

The purpose of this course is to enhance the student's development and learning through observational and participatory experience in forensic focused criminal justice agencies.

Interdisciplinary Option: Forensic Science

This course satisfies the Engaged Learning requirement.

Course equivalencies: X-FRSC 390/ANTH 396A

Outcomes:

Students will be able to contribute in a meaningful way to the operation of a specific forensic focused criminal justice agency and be able to identify and describe the link between their field experience and prior courses

FRSC 392 Forensic Science Seminar (1 Credit Hour)

A weekly seminar course with presentations, generally given by outside speakers, covering topics in chemistry usually not encountered in the classroom. Forensic Science Majors Only.

Interdisciplinary Option: Forensic Science

Outcomes:

Students will demonstrate their understanding by writing a one page summary of each presentation

FRSC 394 Forensic Science Research (1-4 Credit Hours)

Pre-requisites: Prior consultation with the instructor and a completed agreement form; Agreement forms for this directed study course are obtained from the program office, and the completed form (signed by the student, instructor, and program director) must be deposited in the program office before enrollment

This course gives undergraduate students an opportunity to participate in research in a selected area. Forensic Science Majors Only.

Interdisciplinary Option: Forensic Science

This course satisfies the Engaged Learning requirement.

Outcomes:

Students will accomplish the research task defined in the contractual arrangement between the student and the instructor

FRSC 395 Special Topics in the Forensic Science (3 Credit Hours)

Pre-requisites: FRSC 341; Forensic Science Majors Only

Special topics courses provide students with an opportunity to examine various forensic science topics not normally offered as part of the Program's regular curriculum.

Interdisciplinary Option: Forensic Science

Outcomes:

Students will be able to gain an understanding of new issues confronting the forensic sciences, or an advanced understanding of traditional subjects covered in basic courses