

FORENSIC SCIENCE (FSC)

FSC 200 Selected Topics: Forensic Science (1-6 Credits)

Arts & Sciences

Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester. Repeatable

FSC 206 Intermediate Forensic Science (4 Credits)

Arts & Sciences

Provides a detailed look at some of the scientific ideas behind crime detection and how they interact with the legal system. Provides a rational basis for scientific analysis and interpretation of forensic evidence. Reinforced through relevant case studies.

Prereq: CHE 113

FSC 300 Selected Topics (1-6 Credits)

Arts & Sciences

Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester. Repeatable

FSC 306 Advanced Forensic Science (3 Credits)

Arts & Sciences

Selected areas of current interest in forensic science presented. The application of scientific methods and techniques to crime detection and the law.

Prereq: CHE 106 or 109 or 113 or BIO 121

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 332 Intro to Forensic Anthropology (3 Credits)

Arts & Sciences

Introduction to the analysis of human skeletal remains to determine a biological profile of the deceased. Methods used by forensic anthropologists, including osteological, archaeological, and cross-cultural techniques are studied as applied to medicolegal investigations.

FSC 380 International Course (1-12 Credits)

Arts & Sciences

Offered through SUAbroad by educational institution outside the United States. Student registers for the course at the foreign institution and is graded according to that institution's practice. SUAbroad works with the S.U. academic department to assign the appropriate course level, title, and grade for the student's transcript.

Repeatable

FSC 400 Selected Topics (1-6 Credits)

Arts & Sciences

Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester. Repeatable

FSC 434 Anatomy & Physiology for Forensic Medicine (3 Credits)

Arts & Sciences

Double-numbered with FSC 634

Relationships between the structures and functions of the human body. Care of the human body and application to forensic pathology and death investigation. Skin, skeletal system, muscles, nervous system, sensory organs, endocrine system. Additional work for graduate students.

Shared Competencies: Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 435 Medicolegal Death Investigation I (3 Credits)

Arts & Sciences

Double-numbered with FSC 635

Medicolegal death investigation which deals with the history, purpose and legal underpinning of death investigations, effectively handling a death scene, and protocols for public safety and scene processing.

Additional work required of graduate students.

Prereq: FSC 451 or 651

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 436 Medicolegal Death Investigation II (3 Credits)

Arts & Sciences

Double-numbered with FSC 636

Second course in the sequence dealing with information on medicolegal death investigation and deals with procedures for MDI processing and other topics for conducting scientific medicolegal investigations.

Additional work required of graduate students.

FSC 437 Medicolegal Death Investigation for Emergency Responders (3 Credits)

Arts & Sciences

Double-numbered with FSC 637

Course focuses upon the information needed by emergency responders in dealing with suspicious or unexpected deaths. Topics will include dealing with sudden or unexpected deaths, handling the scene, death investigation laws and other topics. Additional work required of graduate students.

FSC 440 Special Topics in Advanced Forensics (3 Credits)

Arts & Sciences

Double-numbered with FSC 640

An in-depth study of scientific disciplines engaged in the criminal justice and legal systems by providing a rational basis for interpreting the scientific analysis of forensic evidence through relevant case studies.

Additional work required of graduate students.

Repeatable

FSC 441 Forensic Analysis of Biological Evidence with lab (3 Credits)*Arts & Sciences*

Double-numbered with FSC 641

Scientific background, methodology, and theory of body fluid identification techniques criminal investigation. Laboratory with mock evidentiary samples, similar to those examined in criminal cases. Report writing, overlaps with other forensic disciplines. Additional work for graduate students.

Shared Competencies: Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 444 Forensic Chemical Analysis (4 Credits)*Arts & Sciences*

Cross-listed with CHE 444

Lecture content, delivered online, and laboratory on analytical methods of forensic chemistry. Underlying theory and direct experience in various chemical tests and spectroscopic methods.

Prereq: (CHE 116 and 117) or (CHE 119 and 139)

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 451 Forensic Pathology (3 Credits)*Arts & Sciences*

Double-numbered with FSC 651

Introduction to forensic pathology and medicolegal investigation of death. Role and jurisdiction of the Medical Examiner, including the autopsy. Specific patterns of injury, types of deaths referred to the Medical Examiner, postmortem decomposition changes, and special topics of interest in death investigation will be discussed. Additional work required of graduate students.

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 452 Forensic Mental Health (3 Credits)*Arts & Sciences*

Double-numbered with FSC 652

Role of consultation, research and clinical practice in areas in which psychiatry is applied to legal issues. Covers how mental health and legal systems function together; issues common to forensic psychiatric analyses. Additional work required of graduate students.

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 453 Forensic Toxicology (3 Credits)*Arts & Sciences*

Double-numbered with FSC 653

Procedures utilized in forensic toxicology, including specimen types, sample preparation, instrumentation, analytical methods, and interpretation of findings. Knowledge of organic and analytical chemistry is strongly advised. Additional work required of graduate students.

Prereq: CHE 116

Shared Competencies: Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 455 Computational Forensics (3 Credits)*Arts & Sciences*

Double-numbered with FSC 655

The investigation of forensic science problems using computational methods, including machine learning and artificial intelligence. Use of Python for automation and artificial intelligence. Additional work required of graduate students.

FSC 456 Mobile Forensics and Social Networking (3 Credits)*Arts & Sciences*

Double-numbered with FSC 656

Examines the use of digital forensic techniques to safely secure, extract and analyze digital evidence from mobile devices and social networks for use in criminal investigations. Additional work required of graduate students.

FSC 457 Principles of Human Toxicology (3 Credits)*Arts & Sciences*

Cross-listed with BIO 457

Double-numbered with BIO 657, FSC 657

This course examines key aspects of human toxicology, including dose-response relationships, absorption, distribution, biotransformation, elimination, toxicokinetics, molecular mechanisms of toxicity, pesticides, metals, and toxic responses in specific organ systems. Additional work required of graduate students.

Shared Competencies: Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 461 Firearms and Impression Evidence (3 Credits)*Arts & Sciences*

Double-numbered with FSC 661

Forensic analysis of firearm and impression evidence and its presentation through court testimony. Manufacturing methods' impact on identification. Serial number restoration, distance determination, full auto conversions, trace evidence, latent print analysis, laboratory quality assurance. Additional work required of graduate students.

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 462 Forensic Entomology (3 Credits)*Arts & Sciences*

Double-numbered with FSC 662

Application and utility of insects as evidence in criminal investigations. Biology and importance of different insect groups in decomposition process. Collection, identification, and processing of insect evidence. Temperature-time relationship in insect growth, its practical use in calculating post-mortem intervals. Additional work required of graduate students.

FSC 463 Bloodstain Pattern Analysis with lab (3 Credits)*Arts & Sciences*

Double-numbered with FSC 663

A lecture and laboratory introduction to the analysis of bloodstain patterns in a forensic context. History, theory, and scientific principles behind the analysis methods are supported by laboratory creation and analysis of various types of bloodstains. Additional work required of graduate students.

Prereq: FSC 306 or FSC 468

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 464 Latent Print Processing with lab (3 Credits)*Arts & Sciences*

Double-numbered with FSC 664

Provides practical knowledge of how to search for, develop, document, and preserve latent prints in a mock crime scene and laboratory setting. Utilizes visual, physical, and chemical methods. Additional work required of graduate students.

Repeatable 2 times for 3 credits maximum

Shared Competencies: Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 465 Latent Prints with practicum (3 Credits)*Arts & Sciences*

Double-numbered with FSC 665

Biology of friction ridge skin including pattern class recognition. Digital imaging of latent prints, analysis and comparison, evidence processing including individual mock cases near the end of the semester. Additional work required of graduate students.

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 467 Forensic Photography with lab (3 Credits)*Arts & Sciences*

Double-numbered with FSC 667

Use of photography in criminal and civil investigations and trials. Changing face of photography and how use of digital cameras has altered rules of evidence and admissibility. Proper use of digital single lens reflex cameras and digital flash. Additional work required of graduate students.

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Information Literacy and Technological Agility (<https://coursecatalog.syracuse.edu/shared-competencies/information-literacy-and-technological-agility/>)

FSC 468 Crime Scene Investigation with lab (3 Credits)*Arts & Sciences*

History and practice of crime scene investigation, including photography, sketches, note-taking, processing and collection of evidence. Includes bloodstain pattern interpretation, collision reconstruction, case studies, mock crime scenes, moot court.

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 469 Science of Countering Weapons of Mass Destruction (3 Credits)*Arts & Sciences*

Cross-listed with BIO 469

Double-numbered with FSC 669, BIO 669

Scientific basis and means for countering WMDs, including biological systems. Protective measures, proven doctrines, practical questions, and problem solving. Additional work required of graduate students.

Prereq: B- or better in both BIO 327 and CHE 275

FSC 470 Experience Credit (1-6 Credits)*Arts & Sciences*

Participation in a discipline or subject related experience. Student must be evaluated by written or oral reports or an examination. Permission in advance with the consent of the department chairperson, instructor, and dean. Limited to those in good academic standing.

Repeatable

FSC 472 Advanced Light Microscopy (3 Credits)*Arts & Sciences*

Cross-listed with BIO 472

Double-numbered with BIO 672, FSC 672

Theory and practice of modern light microscopy, including the fundamentals of image formation and applications in the biological and biomedical sciences, including reviews of microscopy methods and analog and digital image capture. Additional work required of graduate students.

Prereq: BIO 327

FSC 473 Mechanics of Modern Firearms with lab (3 Credits)*Arts & Sciences*

Double-numbered with FSC 673

Provides hands-on understanding of firearms through supervised assembly/disassembly of various firearms. Determination of firearm safety, malfunctions, safety mechanisms, and repairs. Forensic significance of each part, impact of manufacture on forensic identification. Additional work for graduate students.

Prereq: FSC 461

FSC 474 Forensic DNA Analysis with practicum (3 Credits)*Arts & Sciences*

Double-numbered with FSC 674

Explores the present-day state of forensic DNA analysis with a focus on the workflow, instrumentation and methods for data interpretation. Includes a computer laboratory component. Additional work required of graduate students.

Prereq: BIO 326 or BIO 462 or BIO 463

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 475 Latent Prints II (3 Credits)*Arts & Sciences*

Double-numbered with FSC 675

Advanced level coverage of latent print: advanced analysis, comparison, identification; distortion, understanding causes of error; understanding forms of bias; courtroom preparation and testimony; topics research and presentation. Additional work required of graduate students.

Prereq: FSC 465/665

FSC 476 Cold Cases (3 Credits)*Arts & Sciences*

Cross-listed with BIO 476

Double-numbered with FSC 676, BIO 676

Methods and practice in solving unsolved cases using fundamental science, court documents, and other sources of information. Will include work on real cases. Additional work required of graduate students.

Prereq: B- or better in both BIO 327 and CHE 275

FSC 478 Crime Scene Investigation II with lab (3 Credits)*Arts & Sciences*

Double-numbered with FSC 678

Complex aspects of various forensic disciplines will be used concurrently to properly document mock crime scenes and properly collect evidence from those scenes. Crime scene processing decisions will be required based on the varying components of the mock crime scene scenarios.

Additional work required for graduate students.

Prereq: FSC 468 AND (FSC 461 or FSC 463 or FSC 464 or FSC 467)

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 479 Microbial Forensic Science (3 Credits)*Arts & Sciences*

Double-numbered with FSC 679

Exploration of the several fields that Microbial Forensics is applied to and the application of scientific methods and techniques for identification and characterization of microbes. Includes case studies and the scientific methods used in those cases. Additional work required of graduate students.

Prereq: CHE 113 and BIO 121 and BIO 123

Shared Competencies: Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 480 International Course (1-12 Credits)*Arts & Sciences*

Offered through SUAbroad by educational institution outside the United States. Student registers for the course at the foreign institution and is graded according to that institution's practice. SUAbroad works with the S.U. academic department to assign the appropriate course level, title, and grade for the student's transcript.

Repeatable

FSC 490 Independent Study (1-6 Credits)*Arts & Sciences*

In-depth exploration of a problem or problems. Individual independent study upon a plan submitted by the student. Admission by consent of supervising instructor or instructors and the department.

Repeatable

FSC 498 Capstone Seminar in Forensic Science (3 Credits)*Arts & Sciences*

Explore specific overlaps of primary major with forensic science, make contacts with practitioners in the field, complete a capstone project, and present findings. Project will be determined through consultation between the student, instructor, and at least one practitioner.

Prereq: FSC 406

Shared Competencies: Critical and Creative Thinking (<https://coursecatalog.syracuse.edu/shared-competencies/critical-and-creative-thinking/>); Communication Skills (<https://coursecatalog.syracuse.edu/shared-competencies/communication-skills/>); Scientific Inquiry and Research Skills (<https://coursecatalog.syracuse.edu/shared-competencies/scientific-inquiry-and-research-skills/>)

FSC 499 Honors Capstone Project (1-6 Credits)*Arts & Sciences*

Completion of an Honors Capstone Project under the supervision of a faculty member.

Repeatable

FSC 500 Selected Topics (1-6 Credits)*Arts & Sciences*

Exploration of a topic (to be determined) not covered by the standard curriculum but of interest to faculty and students in a particular semester.

Repeatable