

## FS - Forensic Sciences

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Courses numbered 100 to 299 = *lower-division*; 300 to 499 = *upper-division*; 500 to 799 = *undergraduate/graduate*.

### FS 381. Special Topics (1-3).

An umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 381A, 381B, etc.) Students should enroll in the lettered courses with specific topics in the titles rather than in this root course. Generally, the FS 381\_ courses are detailed studies of topics in forensic science with particular emphasis established according to the expertise of the various instructors.

### FS 381AR. Terrestrial 3D Laser Scanning/Mapping (3).

Cross-listed as CJ 783AR and CJ 381AR. Hands-on course designed to learn the basics of High Definition 3-Dimensional Scanning (HDS) to capture millions of data points. Students use time-of-flight scan equipment to capture data and state-of-the-art software to register (stitch) the data into a 3D coordinated system of point clouds and other related products used in many professions to include geographic information systems (GIS), civil infrastructure, crime scene and accident reconstruction, building information modeling (BIM,) the documentation of large industrial complexes, heritage preservation, and the detailing of archaeological excavations. Basic understanding of the Microsoft Windows operating system is needed.

### FS 381AS. Forensic Photography (3).

Cross-listed as CJ 381AS and CJ 783AS. Photographic documentation plays a major role in recording crime scenes and physical evidence upon its discovery. Course provides photography theory and hands-on application as applied to criminal investigations and criminalistics. Provides an understanding of theory, methods and skills needed for proper exposure, lighting techniques and composition to produce sharp, well defined, properly exposed digital images used as part of the criminal investigative and judicial process. Students become familiar with the use of digital single-lens reflex camera equipment and develop the photographic methods to recognize, take and prepare images for investigative and/or courtroom use. Students are given the opportunity to apply learned skills while processing mock crime scenes and other photographic assignments.

### FS 381AV. Forensic 3D Laser Scanning/Mapping (3).

Cross-listed as CJ 783AV and CJ 381AV. Advanced course using High Definition 3-dimensional Scanning (HDS) in which students use time-of-flight scan equipment and related software to learn methods of 2D and 3D scene documentation. Examines data collection techniques and workflows particular to crime scenes including shooting incident reconstruction, anthropological and clandestine gravesite excavation documentation, as well as the types of visual deliverables which can be created to assist investigative and judicial proceedings. Prerequisites: understanding of the Microsoft Windows file system; CJ 381AR, FS 381AR, or CJ 783AR.

### FS 450. Forensic Identification of Marijuana (1).

Focuses on the botanical and chemical background necessary for the identification of marijuana. Students gain practical experience in the microscopic and chemical analysis of the marijuana plant. Prerequisites: BIOL 210, 211, CHEM 211, 212.

### FS 451. Forensic Identification of Narcotics and Other Illicit Substances (1).

Provides a background in selected analytical chemistry procedures used in the forensic lab to ensure a specific qualitative identification of various licit and illicit controlled substances. Students gain experience in the theory and application of various colorimetric, chromatographic

and spectrophotometric techniques used in the modern forensic lab. Prerequisites: BIOL 210, 211, CHEM 211, 212.

### FS 452. Forensic Toxicology Alcohol (1).

Provides a didactic background for understanding the pharmacology/toxicology of alcohol. Students gain an understanding of the testing of biological fluids for alcohol, the interpretation of the results, including various pharmacokinetic calculations used in forensic settings, and the application of alcohol results in a judicial arena. Prerequisites: BIOL 210, 211, CHEM 211, 212.

### FS 453. Forensic Serology (1).

Provides a background in the detection, characterization and identification of biological fluids. Students gain a fundamental background in the characteristics of blood, saliva and semen, and practical hands-on experience in the forensic analytical techniques used in their detection and identification. Prerequisites: BIOL 210, 211, CHEM 211, 212.

### FS 454. Fingerprint Development and Analysis (1).

Provides an understanding of the development of fingerprint classification systems, and the detection, collection and preservation of latent fingerprints. Students gain practical hands-on experience using various powders and chemicals for development and recovery of latent fingerprints. Prerequisites: BIOL 210, 211, CHEM 211, 212.

### FS 455. Forensic Arson Analysis (1).

Provides exposure to the detection and classification of various flammable chemicals used in arson fires. Students gain exposure to the analytical techniques used in the laboratory investigation of suspicious fires. Prerequisites: BIOL 210, 211, CHEM 211, 212.

### FS 498. Seminar in Forensic Sciences Techniques I (3).

Part one of the comprehensive academic-year-long overview of how forensic science techniques influence the criminal investigation process. Students receive instruction from faculty in the chemistry, biological sciences, anthropology and criminal justice departments. Prerequisites: FS 450, 451, 452, 453, 454, 455, CJ 420.

### FS 499. Seminar in Forensic Sciences Techniques II (3).

Part two of the comprehensive overview of how forensic science techniques influence the criminal investigation process. Students receive instruction from faculty in the chemistry, biological sciences, anthropology and criminal justice departments. Prerequisites: FS 450, 451, 452, 453, 454, 455, 498, CJ 420.