Forensic Science (FSCI)

FSCI 3300
Forensic Photography
3:3:0  Fall, Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a 'C+' or higher) and University Advanced Standing

Explains the basic concepts of Forensic Photography while exploring the fundamental skills for the selection and use of photography equipment. Identifies the basic principles and fundamentals of using photography with regard to crime scenes, forensic evidence, and identification photography. Illustrates skills utilizing a DSLR camera with various types of lighting, camera settings, and common camera accessories. Explains techniques involving surveillance, impression, close up, alternate light sources, infrared photography, and the legal aspects of forensic photography as it pertains to criminal investigations. Course fee of $155 applies.

FSCI 3400
Criminalistics
3:3:1  Fall, Spring
* Prerequisite(s): CJ 1350 with a C+ or higher and University Advanced Standing

Emphasizes the learning and proper use of technical vocabulary used in forensic science. Introduces basic photography and presentation techniques as they relate to the field of forensics. Teaches laws pertaining to making photographic copies and the legal steps required for altered photographs to be accepted in the criminal court system. Introduces basic laboratory measurement and statistical techniques. Uses stereo and compound light microscopes to visually examine physical evidence. Discusses the scientific theory and analytical procedures for analyzing refractive index of glass, species identification of hair, bullet rifling, DNA and the calculation of Post Mortem Interval. Course Lab fee of $142 for materials applies.

FSCI 3500
Footwear and Tire Mark Evidence and Examination
3:3:0  Fall, Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher) and University Advanced Standing

Presents the history of footwear and tire impression evidence and introduces the examination of impression evidence. Explains crime scene protection and searching procedures for impression evidence. Identifies and lists the basic equipment needed for footwear and tire impression recovery at a crime scene. Identifies applicable chemical formulas and instructs in the preparation of chemical reagents used to visualize impression evidence. Teaches the recovery of footwear and tire evidence through photography, lifting, and casting. Includes the methodology of footwear and tire identification by image comparison techniques. Course fee of $128 for materials applies.

FSCI 3540
Forensic Trace Analysis I
3:2:3  Fall
* Prerequisite(s): FSCI 3400 with a C+ or higher, CHEM 1220/1225 and University Advanced Standing
* Prerequisite(s) or Corequisite(s): CHEM 2310 and CHEM 2315

Emphasizes the learning and proper use of technical vocabulary as it relates to forensic trace evidence. Teaches theory of techniques and operation of spectroscopic instruments. Performs spectroscopic analyses of various types of physical evidence. Uses stereo and compound light microscopes to prepare small samples for examination. Teaches forensic comparison analysis and technical report writing. Lab access fee of $30 for computers applies. Course fee of $135 for materials applies.

FSCI 3550
Forensic Trace Analysis II
3:2:3  On Sufficient Demand
* Prerequisite(s): (FSCI 3400 or CHEM 2310 with a C+ or higher) and University Advanced Standing

Teaches theory of chromatographic/mass spectrometry techniques and operation of their analytical instruments. Teaches proper use of technical vocabulary related to forensic analysis. Performs chromatographic and mass spectrum analyses of physical evidence commonly found in criminal investigations. Teaches sample preparation, forensic comparison analysis and technical report writing. Lab access fee of $30 for computers applies.

FSCI 3600 (Cross-listed with: ZOOL 3600)
Forensic Anthropology I
3:1:2  On Sufficient Demand
* Prerequisite(s): ZOOL 1090, or ZOOL 2320 and ZOOL 2325, University Advanced Standing

Provides instruction on the study of human bones and their remains as physical evidence in criminal investigations. Teaches the importance of dentition in determining an age estimate of human remains. Identifies the differences among the sexes, whether the remains are human or nonhuman, and what is of forensic significance. Explains crime scene methodology and clinical applications in Forensic Anthropology. Teaches problem solving and analytical thinking in order to develop a biological profile based on population-specific data and standards. Investigates different pathological conditions and variables which must be taken into consideration when determining the cause of death.

FSCI 3700
Fingerprint Processing
3:3:0  Fall, Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher) and University Advanced Standing

Teaches professional conduct in fingerprint processing. Explains the differences in latent fingerprints as they relate to the physical condition in which they are found. Describes and utilizes the equipment needed for fingerprint development, lifting, and comparison. Course fee of $143 for materials applies. Lab access fee of $30 applies.

FSCI 3720
Fingerprint Examination
3:3:0  Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher) and University Advanced Standing

Presents the history of fingerprint examination. Teaches recent technical advances in fingerprint development and examination. Describes the theory and make-up of fingerprints, palm prints, and footprints. Explores charting and comparison techniques. Teaches criteria used to determine successful identification versus non-identification. Lab access fee of $30 computers applies. Course fee of $30 materials applies.
Forensic Science

FSCI 3780
Bloodstain Pattern Analysis
3:3:0 Fall, Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher) and University Advanced Standing
Teaches the basics of handling blood evidence typically encountered at a crime scene. Explains terminology and the techniques of documentation as it relates to the analysis of bloodstain patterns. Presents the physical properties of blood as they apply to forensic investigation. Identifies characteristic patterns and computer applications to interpret the impact patterns of spattered blood. Illustrates the concepts of motion, directionality, area of convergence, and the area of origin of impact bloodstain patterns. Teaches traditional and modern techniques in crime scene reconstruction for documenting and reconstructing the crime scene. Describes guidelines for presenting bloodstain evidence at trial. Course lab fee of $75 for materials applies.

FSCI 3820
Crime Scene Investigation Techniques I
3:3:0 Fall, Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher) and University Advanced Standing
Explains the fundamental goals of crime scene investigation and the importance of physical evidence. Teaches fundamental crime scene documentation skills including note taking, sketching, and photography. Teaches evidence identification, collection, and packaging procedures. Provides experience in evidence identification, documentation, collection, and packaging procedures. Course Lab fee of $145 applies.

FSCI 3830
Crime Scene Investigation Techniques II
3:3:0 Fall, Spring
* Prerequisite(s): FSCI 3820, FSCI 3780, and University Advanced Standing
Teaches computer-based crime scene measurement and diagram tools utilized to properly document crime scenes including clandestine human graves, scattered human remains, and underwater, fire, and arson scenes. Provides instruction in proper approach, documentation, and analysis of complex crimes scenes. Teaches crime scene reconstruction techniques in bloodstain patterns and shooting incident scenes. Course fee of $155 for materials applies. Course fee of $30 applies.

FSCI 3850
Marijuana Identification Certificate
3:2:2 Summer
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher) and University Advanced Standing
Teaches the botanical and chemical methodology required for the legal identification of marijuana. Identifies the microscopic morphological features of the plant material. Uses thin layer chromatography to detect hallucinogenic chemicals. Uses the Duquenois-Levine Test to detect the cannabinoid family of chemicals and how to recognize false-positive results. Teaches the methodology to detect marijuana residues in charred debris. Interprets data, writes a marijuana analysis report and presents results in a Moot Court. Course fee of $155 for materials applies.

FSCI 3860
Forensic Microscopy
3:2:3 Fall, Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher) and University Advanced Standing
Lays the foundation of forensic microscopy. Explains the theory of the microscope: light and lenses. Describes the major variants of the compound microscope including the stereo, polarized light and comparison varieties. Explains the function and purpose of the illuminator, sub-stage condenser, objective, and ocular. Establishes acceptable performance criteria and image quality as it relates to compromises among resolution, magnification, and visibility. Presents the use of specialized contrast enhancement methods and illumination techniques. Explains the theory and use of the polarized light microscope in the examination of anisotropic, birefringent, and optical properties of crystalline materials. Describes the use of the microscope as a quantitative measuring tool. Introduces instrument systems calibration methods for both the microscope as well as imaging software. Describes the collection and examination of micro-traces and the use of micro-trace catalogs. Examination and discussion of firearms, bullet, tool marks, hair and fiber characteristics. Lab access fee of $30 for computers applies. Course fee of $152 for materials applies.

FSCI 3880
Expert Witness Professional Practices
3:3:0 Spring
* Prerequisite(s): (CJ 1330 and CJ 2350 each with a C+ or higher) and University Advanced Standing
Stresses the importance of background checks, polygraph tests and personal integrity. Teaches Professional Competence: training, degrees and certificates, publications, affiliations, testimony track record, continuing education. Describes the duties and the special privileges of opinion testimony afforded to expert witnesses. Explains the Rules of Evidence and statistical reliability as they pertain to scientific data and findings. Presents guidelines for case review and report writing. Discusses trial strategy, testimony, presentations, and dangers that confront the expert witness at court. Discusses cross-examination strategies. Teaches professional business practices including personal organization, contracts for hiring the expert for professional services, consultation, correspondence, record keeping, fee setting, and fee collection.

FSCI 4000
Firearms Examination
3:3:0 Fall
* Prerequisite(s): (CJ 1350 and FSCI 3400 with a C+ or higher) and University Advanced Standing
* Prerequisite(s) or Corequisite(s): FSCI 3860
Identifies modern firearms and ammunition while teaching how they operate and are manufactured. Explains how to collect, preserve, transport, and safely handle firearms and ammunition. Discusses the procedures of firing and the recovery of test bullets. Teaches the procedures of serial number restoration, gun shot residue tests, distance determinations, microscopic and chemical examinations. Includes how to interpret data, write reports of findings, and present results in a court of law. Course fee of $65 applies.

FSCI 4100
Forensic Pathology Forensic Pathology
3:3:0 Fall
* Prerequisite(s): ZOOL 1090, or ZOOL 2320 and 2325, University Advanced Standing
Teaches the fundamentals of scientific techniques used by forensic pathologists in medicolegal investigations. Differentiates between sudden or unexpected deaths, homicides, suicides, accidental deaths, and trauma.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Term</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSCI 4200</td>
<td>Medicolegal Death Investigations</td>
<td>3:3:0</td>
<td>Spring</td>
<td>* Prerequisite(s): FSCI 4100 and University Advanced Standing</td>
<td>Discusses the foundation for understanding death scene analysis by an investigator in conjunction with a medical examiner while discussing the integration of medical, scientific, and legal methodology as applied to Medicolegal Death Investigations. Examines various techniques used in the study of forensic science and medicine. Teaches the interpretation of the facts and evidence to help determine and reconstruct the sequence of events at a variety of classic death scenes. May be delivered hybrid.</td>
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<tr>
<td>FSCI 443R</td>
<td>Directed Research in Forensic Science</td>
<td>2 to 7:1:3 to 15</td>
<td>Fall, Spring, Summer</td>
<td>* Prerequisite(s): Instructor Approval and University Advanced Standing</td>
<td>Provides undergraduate research. Guidance by a faculty member directs literature data, experimental design, data acquisition, interpretation of results, and conclusion. Written report, suitable in form for publication, necessary for completion. May be repeated for a maximum of 7 credits toward graduation. Lab access fee of $30 for computers applies. Course fee of $310 for materials applies.</td>
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<tr>
<td>FSCI 475R</td>
<td>Current Topics in Forensic Science</td>
<td>3:3:0</td>
<td>On Sufficient Demand</td>
<td>* Prerequisite(s): CJ 1350 or FSCI 3400 with a 'C+' or higher, and University Advanced Standing</td>
<td>Presents selected topics in Forensic Science and Forensic Investigations. Requires a special topic related to the area of study. May be repeated with different topic areas for a maximum of 9 credits toward graduation.</td>
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<td>FSCI 481R</td>
<td>Forensic Science Internship</td>
<td>1 to 9:1 to 9:0</td>
<td>Fall, Spring, Summer</td>
<td>* Prerequisite(s): Department application approval and University Advanced Standing</td>
<td>Provides actual, on-the-job work experience on a paying or non-paying (volunteer) basis in a Forensic Science profession or other approved related discipline. Emphasizes successful work experience through job shadowing of a professional. May be repeated for a maximum of 9 credits toward graduation. May be graded Credit/No Credit.</td>
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<tr>
<td>FSCI 491R</td>
<td>Directed Reading and Special Projects</td>
<td>1 to 3:1 to 3:0</td>
<td>On Sufficient Demand</td>
<td>* Prerequisite(s): Department Approval and University Advanced Standing</td>
<td>Offers independent study as directed in theoretical, experimental, or practical discipline emphasis in an area not covered by regular courses. May be Graded Credit/No Credit. May be repeated for a maximum of 9 credits toward graduation.</td>
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FSCI 4990
Forensic Investigation Capstone
3:3:0
Spring
* Prerequisite(s): FSCI 3300, FSCI 3830 and University Advanced Standing
Applies qualitative, quantitative, and/or mixed research methods for selected issues in forensic investigation. Requires the student to develop and present an undergraduate research project both orally and in writing. Students should plan to register for this course in their last semester of the program.

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