

## Forensic Science (FSCI)

### FSCI 3300 Forensic Photography

3

\* Prerequisite(s): Forensic Science Majors only 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. Lab access fee of \$15 applies.

### FSCI 3400 Criminalistics

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\* Prerequisite(s): Forensic Science Majors only and University Advanced Standing

Introduces entry-level forensic skills instrumental in conducting a complete and thorough criminal investigation. Discusses effective crime scene management as well as types of information, which can be gleaned from physical evidence as result of laboratory analysis. Applies scientific and technical methods used in the examination and analysis of physical evidence. Course Lab fee of \$142 for materials applies. Lab access fee of \$15 applies.

### FSCI 3500 Footwear and Tire Mark Evidence and Examination

3

\* Prerequisite(s): Forensic Science Majors only, 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. Lab access fee of \$15 applies.

### FSCI 3540 Forensic Trace Analysis I

3

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

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. Explains spectroscopic analyses of various types of physical evidence. Teaches stereo and compound light microscopes to prepare small samples for examination. Teaches forensic comparison analysis and technical report writing. Lab access fee of \$15 for computers applies. Course fee of \$135 for materials applies.

### FSCI 3550 Forensic Trace Analysis II

3

\* Prerequisite(s): FSCI 3540, Forensic Science Majors only, 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. Explains 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 \$15 for computers applies.

### FSCI 3600 (Cross-listed with: ZOOL 3600) Forensic Anthropology I

3

\* 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

\* Prerequisite(s): Forensic Science Majors only, 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 \$15 applies.

### FSCI 3720 Fingerprint Examination

3

\* Prerequisite(s): Forensic Science Majors only, 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 \$15 for computers applies. Course fee of \$30 materials applies.

### FSCI 3780 Bloodstain Pattern Analysis

3

\* Prerequisite(s): Forensic Science Majors only, 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. Lab access fee of \$15 applies.

### FSCI 3820 Crime Scene Investigation Techniques I WE

3

\* Prerequisite(s): Forensic Science Majors only, 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

## Course Descriptions

### **FSCI 3830**

#### **Crime Scene Investigation Techniques II WE 3**

\* Prerequisite(s): FSCI 3820, Forensic Science Majors only, and University Advanced Standing

\* Prerequisite(s) or Corequisite(s): FSCI 3780

Teaches computer-based crime scene measurement and diagram tools utilized to properly document crime scenes including clandestine human graves, scattered human remains, and under water, 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**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Teaches the botanical and chemical methodology required for the legal identification of marijuana. Explains the microscopic morphological features of the plant material. Describes thin layer chromatography to detect hallucinogenic chemicals. Teaches 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. Explains data interpretation used for writing a marijuana analysis report to present in criminal proceedings. Course fee of \$155 for materials applies. Lab access fee of \$15 applies.

### **FSCI 3860**

#### **Forensic Microscopy 3**

\* Prerequisite(s): Forensic Science Major only, and University Advanced Standing

Lays the foundation of forensic microscopy. Describes the major variants and functions of the compound microscope including the stereo, polarized light and comparison varieties. 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 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. Lab access fee of \$15 for computers applies. Course fee of \$152 for materials applies.

### **FSCI 3880**

#### **Forensic Experts/Professional Practices and the Legal System 3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Explores the legal environment pertaining to forensic expert witnessing. Teaches the litigation process and aspects of courtroom testimony. Discusses forensic expert qualifications, ethics and credibility. Teaches the processes and importance of training, certification, periodic proficiency testing and review. Evaluates the role of professional organizations within forensic science. Examines national guidelines and reports affecting the practice, methodology and scientific validity within forensic disciplines.

### **FSCI 4000**

#### **Firearms Examination 3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

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. Lab access fee of \$15 applies.

### **FSCI 4050**

#### **Forensic Approaches to Cold Case Investigations 3**

\* Prerequisite(s): Forensic Science Major only, and University Advanced Standing

Teaches key procedures directly related to cold case investigations with a focus on how advancing forensic technological advances provide new avenues for solving cases. Teaches investigative procedure and forensic evidence in cold case investigations. Teaches investigative theory, practices, crime scene investigative techniques, physical evidence and new forensic technical approaches to investigations. Explains new options or investigative leads for cold case investigations. Requires a 20-hour service-learning component.

### **FSCI 4100**

#### **Forensic Pathology 3**

\* 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.

### **FSCI 4200**

#### **Medicolegal Death Investigations 3**

\* Prerequisite(s): FSCI 4100, Forensic Science Majors only, and University Advanced Standing

Discusses the foundation for understanding death scene analysis by an investigator in conjunction with a medical examiner. Teaches the integration of medical, scientific, and legal methodology 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.

### **FSCI 4300**

#### **Forensic Genealogy 3**

\* Prerequisite(s): Forensic Science Majors only, and University Advanced Standing

Teaches the application of forensic genealogy to non-criminal and criminal cases. Provides an analysis of scientific methods used to create genetic profiles, which establish genetic relationships. Examines ethical implications, current laws and policies governing genetic genealogy in forensic investigations.

### **FSCI 4320**

#### **Genealogy Research Methods and Standards 3**

\* Prerequisite(s): FSCI 4300, Forensic Science Majors only, and University Advanced Standing

Teaches traditional genealogy research methods and subsequent analysis of documentary evidence. Discusses the overall process of documenting, research, data collection and organization. Explores effective search methods such as vital records, census, immigration and historical documents. Teaches the standards of the Board for Certification of Genealogists and The Genealogical Proof Standard.

### **FSCI 4350**

#### **Forensic Genealogy Seminar 3**

\* Prerequisite(s): FSCI 4300, FSCI 4320, Forensic Science Majors only, and University Advanced Standing

Provides a capstone experience in Forensic Genealogy. Applies forensic genetic genealogy knowledge to the development of a real world investigation project in consultation with a faculty member.

**FSCI 443R**

**Directed Research in Forensic Science  
2 to 7**

\* Prerequisite(s): Forensic Science Majors only, Instructor Approval and University Advanced Standing

Provides guided research studies in forensic science under the direction of a Forensic Science faculty mentor. Involves students in the methodology of research within various forensic science disciplines. Includes the process of forming a testable hypothesis through the combination of literature and data review, experimental design, data acquisition, interpretation of results and overall conclusive findings. May be repeated for a maximum of 7 credits toward graduation. Lab access fee of \$15 for computers applies. Course fee of \$310 for materials applies.

**FSCI 475R**

**Current Topics in Forensic Science  
3**

\* Prerequisite(s): (CJ 1350 or FSCI 3400) with a 'C+' or higher, Forensic Science Majors only, and University Advanced Standing

Presents selected topics in Forensic Science and Forensic Investigations. May be repeated with different topic areas for a maximum of 9 credits toward graduation.

**FSCI 481R**

**Forensic Science Internship  
1 to 9**

\* Prerequisite(s): Forensic Science Majors, department approval and University Advanced Standing

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.

**FSCI 489R**

**Research in Forensic Investigations  
2 to 7**

\* Prerequisite(s): Forensic Science Majors only, Instructor Approval and University Advanced Standing

Teaches research techniques within forensic investigation disciplines on a project determined by the student and under the direction of a forensic science faculty mentor. Consists of any combination of literature reviews, original research, and/or participation in ongoing departmental projects. Emphasizes experimental technique, data collection, methodology, analysis, and preparation of research for presentation to an audience of peers. May be repeated for a maximum of 7 credits toward graduation.

**FSCI 491R**

**Directed Reading and Special Projects  
1 to 3**

\* Prerequisite(s): Forensic Science Majors only, Department Approval and University Advanced Standing

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.

**FSCI 4990**

**Forensic Investigation Capstone  
3**

\* Prerequisite(s): FSCI 3300, FSCI 3830, Forensic Science Majors only, 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.