Forensic Science (FSCI)

FSCI 100R
Forensic Science Lecture Series
1:1:0  On Sufficient Demand

Consists of lectures presented by guest speakers on current topics in forensic science. May apply a maximum of three credits toward graduation.

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

Analyzes different kinds of physical evidence in a laboratory setting. Introduces the theory and operation of basic analytical techniques and instruments. Discusses laboratory safety. Reviews the metric measurement system. Uses chromatography to separate and identify the individual components of mixtures. Uses stereo and compound light microscopes to visually examine evidence. Uses spectrometry for color and chemical composition studies. Course Lab fee of $142 for materials applies.

FSCI 3500
Footwear Impression Evidence
3:3:0  Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 each with a C+ or higher) and University Advanced Standing

Presents the history of footwear evidence and introduces the examination of footwear impressions. Presents the anatomy of the human foot, its relationship to the manufacturing process, and resulting impressions. Explains crime scene protection and searching procedures. Explains why footwear impressions are overlooked and how to find them. Identifies and lists the basic equipment needed for footwear recovery at the crime scene. Identifies applicable chemical formulas and instructs in the preparation of chemical reagents used to visualize footwear impressions. Teaches lighting and other enhancements used to record and preserve footwear evidence. Recovers footwear evidence through photography, lifting, and casting. Teaches the methodology of footwear identification by image comparison techniques. Course fee of $128 for materials applies.

FSCI 3520
Tire Imprint Evidence
3:2:3  Not Offered
* Prerequisite(s): (CJ 1350 or FSCI 3400 each with a C+ or higher) and University Advanced Standing

Presents a brief history of the tire and tire sales. Explains the mechanics of the tire tread and sidewalls resulting in distinctive wear patterns. Teaches Crime Scene and Traffic Accident Investigation: recording tire imprints, wheelbase and tire tread stance measurements. Describes the Tire Imprint Identification System: tire noise treatments, wear indicators, test tire impressions, and tire tread drawings. Explains what can be learned without a suspect's vehicle. Explains what can be learned when you do have a suspect's tire. Advises on preparing for trial and obtaining a consultant. Presents one case from the beginning to end. Presents a test case example on tire imprint identification.

FSCI 3540
Forensic Trace Analysis I
3:2:3  Fall, Spring
* Prerequisite(s): FSCI 3400 with a C+ or higher and University Advanced Standing

Introduces the composition and varieties of glass, and discusses the forensic value of glass fractures and fragments associated with crimes. Teaches the physical and light transmission properties of glass. Instructs on the analytical identification of glass using instruments and microscopes to measure density, refraction, color and melting point. Introduces the chemical composition of paint. Teaches how to determine color, binder and elemental composition, and make forensic comparisons on microscopic sized samples. Explains the examination of fire debris, explosives and explosive residues. Teaches the physical characterization and chemical analysis of fire debris and explosive residues. Lab access fee of $30 for computers applies. Course fee of $135 for materials applies.

FSCI 3550
Forensic Trace Analysis II
3:3:0  On Sufficient Demand
* Prerequisite(s): (FSCI 3400 or CHEM 2310 with a C+ or higher) and University Advanced Standing

Introduces the physical and biological properties of hair including structure, color, and composition. Teaches the difference between human and animal hair. Explains microscopic hair comparison and the avoidance of false-positive results. Introduces the occurrence of fiber evidence. Teaches methods of fiber recovery and sample preparation. Explains the use of instruments and microscopes to determine chemical composition, color, strength, and shape. Teaches methods of fiber comparison, identification, and classification. Discusses the significance of fiber evidence. Lab access fee of $30 for computers applies.

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

Teaches professional conduct in fingerprint examination. Explains the differences in latent fingerprints as they relate to the physical condition in which they are found. Describes the equipment needed for fingerprint development, lifting and comparison. Presents different classification schemes. Teaches basic fingerprint comparisons, writing examination notes, and applies verification protocols to ensure accuracy. Prepares for courtroom testimony covering: written reports, dress and appearance, demeanor, testimony, presentation, mock trials. Prepares for cross-examination. Deals with judges, opposing counsel, juries and reporters. Lab access fee of $30 for computers applies. Course fee of $143 for materials applies.

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


FSCI 3740
Fingerprint Examination III
3:3:0  Not Offered
* Prerequisite(s): Instructor Approval and University Advanced Standing

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 methods for protection against bloodborne pathogens. Reviews weights, measures, trigonometry, and stroboscopic photo techniques. Presents bloodstain analysis from functional and historical perspectives. Teaches specialized bloodstain terminology and the techniques of bloodstain documentation. Presents the physical properties of blood as they apply to forensic investigation. Uses characteristic patterns and computer applications to interpret the impact patterns of splattered blood. Determine the motion, directionality, point of convergence, and the point of origin of bloodstains. Teaches traditional and modern techniques in crime scene reconstruction for documenting and reconstructing the crime scene. Presents guidelines for presenting bloodstain evidence at trial. Course lab fee of $75 for materials applies.

FSCI 3800
Computer Forensics and Cyber Crime
3:3:0 Fall, Spring
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher or Instructor approval) and University Advanced Standing


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. Explains the importance of physical evidence. Teaches fundamental crime scene documentation skills including note taking, sketching, and photography. Teaches evidence collection and packaging. Teaches specific methodology for death scenes, trace evidence, bloodstains, and ballistics. Assembles the evidence to reconstruct the crime scene.

FSCI 382L
Crime Scene Investigation Techniques Laboratory I
1:0:3 Not Offered
* Prerequisite(s): CJ 1340 and University Advanced Standing
* Corequisite(s): FSCI 3820

Teaches fundamental crime scene documentation skills including note taking, sketching, photography. Teaches evidence collection and packaging allowing correct tracking and protection against contamination. Teaches packaging of dangerous and infectious materials. Teaches by a cycle of critique, review, and repeat for at least two cycles to make documentation skills automatic, thus allowing the investigator to concentrate on the evidence and not on the process. Uses an alternative light source to find evidence at the crime scene. Provides experience in fingerprint development, photography and lifting. Provides experience in making three dimensional casts and two dimensional impressions of physical evidence. Course Lab fee of $165 for materials applies.

FSCI 3850
Marijuana Identification Certificate
3:2:2 Summer
* Prerequisite(s): (CJ 1350 or FSCI 3400 with a C+ or higher or Instructor Approval) 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. Teaches the methodology to detect marijuana residues in charred debris. Identifies false-positive results. 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 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, substage 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 and illumination techniques. Explains the theory and use of the polarized light microscope in the examination of anistropic, birefringent, and optical properties of crystalline materials. Describes the use of the microscope as a quantitative measuring tool. Introduces color analysis using a microscope attached to a spectrophotometer. Teaches instrument calibration methods and the principles of forensic microscopic spectrophotometric examination. Describes the collection and examination of microtraces and the use of microtrace catalogs. 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.

Utah Valley University
FSCI 4400
Forensic Chemistry
3:3:1 Spring
* Prerequisite(s): (CHEM 2320 or FSCI 3400 with a C- or higher), instructor approval, and University Advanced Standing
* Corequisite(s): FSCI 440L

Teaches safety precautions. Teaches the importance and procedures of evidence security, package seals to avoid contamination and loss. Instructs in case documentation and analytical notes in the laboratory. Teaches chemical analysis techniques including: net weight determination, sample preparation, presumptive testing, structural conformation and quantization. Teaches guidelines for data analysis, interpreting results, and writing analytical reports. Provides guidelines for case review and quality assurance. Teaches botanical identification and marijuana analysis. Presents methods for fiber and polymer analysis, paint sample preparation, and microscopic color analysis. Intends to replace the initial on-the-job training and professional seminars required of beginning forensic chemists after being hired in a crime laboratory.

FSCI 440L
Forensic Chemistry Laboratory
1:0:3 Not Offered
* Prerequisite(s): University Advanced Standing
* Corequisite(s): FSCI 4400

Stresses laboratory safety. Teaches evidence security, and the avoidance of contamination and loss. Instructs in case documentation and analytical notes in the laboratory. Teaches chemical analysis techniques including: net weight determination, sample preparation, presumptive testing, structural conformation and quantization. Teaches guidelines for data analysis, interpreting results, and writing analytical reports. Provides guidelines for case review and quality assurance. Teaches botanical identification and marijuana analysis. Presents methods for fiber and polymer analysis, paint sample preparation, and microscopic color analysis. Intends to replace the initial on-the-job training and professional seminars required of beginning forensic chemists after being hired in a crime laboratory.

FSCI 443R
Directed Research in Forensic Science
2 to 7:1:3 to 15 Fall, Spring, Summer
* Prerequisite(s): Instructor Approval and University Advanced Standing

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.

FSCI 481R
Forensic Science Internship
1 to 8:0:5 to 40 On Sufficient Demand
* Prerequisite(s): Department application approval and University Advanced Standing

Provides actual, on-the-job work experience on a paying or non-paying (volunteer) basis in a Forensic Science professions or other approved related situation. Emphasizes successful work experience, with emphasis on identifying and solving problems. May be repeated for a maximum of 8 credits toward graduation. May be graded Credit/No Credit.