

CJC 222 CRIMINALISTICS

COURSE DESCRIPTION:

Prerequisites: CJC 111 and CJC 112

Corequisites: ENG 090 and RED 090, or satisfactory score on placement test

This course covers the functions of the forensic laboratory and its relationship to successful criminal investigations and prosecutions. Topics include advanced crime scene processing, investigative techniques, current forensic technologies, and other related topics. Upon completion, students should be able to identify and collect relevant evidence at simulated crime scenes and request appropriate laboratory analysis of submitted evidence. Practical applications of course materials are utilized at the instructor's discretion. Course Hours Per Week: Class, 3. Semester Hours Credit, 3.

LEARNING OUTCOMES:

Upon successful completion of this course, the student will be able to:

- a. Categorize equipment used in evidence collection.
- b. Demonstrate methods of collection at crime scenes.
- c. Demonstrate the use of cast and impression materials.
- d. Recognize and apply the appropriate techniques for enhancing, preserving, collecting, and identifying latent prints.
- e. Select the appropriate photographic techniques for the crime scene and specific evidence.
- f. Analyze microscopic evidence utilizing various microscopes.
- g. Preserve and analyze bodily fluid samples.
- h. Categorize hair samples.
- i. Evaluate light energy choices for latent and blood print development and enhancement.
- j. Identify and interpret paint, glass, soil, and fiber samples.

OUTLINE OF INSTRUCTION:

- I. Background
 - A. Definition and scope of forensic science
 - B. History and development of forensic science
 - C. Organization and services of a crime laboratory
 - D. Functions of a forensic scientist

- II. The crime scene
 - A. Processing the crime scene
 - B. Legal considerations at the crime scene

- III. Physical evidence
 - A. Common types of physical evidence
 - B. Significance of physical evidence

- IV. Physical properties of glass and soil
 - A. The metric system
 - B. Physical properties
 - C. Comparing glass fragments
 - D. Glass fractures
 - E. Collection and preservation of glass evidence
 - F. Forensic characteristics of soil
 - G. Collection and preservation of soil evidence

- V. Organic analysis
 - A. Elements and compounds
 - B. Selecting an analytical technique
 - C. Chromatography
 - D. Spectrophotometry
 - E. Mass spectrometry

- VI. Inorganic analysis
 - A. Evidence in the assassination of President Kennedy
 - B. Emission of spectrum elements
 - C. Atomic absorption spectrophotometry
 - D. Origin of emission and absorption spectra
 - E. Neutron activation analysis
 - F. X-ray diffraction

- VII. The microscope
 - A. The compound microscope
 - B. The comparison microscope
 - C. The stereoscopic microscope
 - D. The polarization microscope
 - E. The microspectrophotometer
 - F. The scanning electron microscope (SEM)

- VIII. Hairs, fibers and paints
 - A. Morphology of hair
 - B. Identification and comparison of hair
 - C. Collection of hair evidence
 - D. Types of fibers
 - E. Identification and comparison of man-made fibers

- F. Collection of fiber evidence
- G. Forensic examination of paint
- H. Collection and preservation of paint evidence

- IX. Drugs
 - A. Narcotic drugs
 - B. Hallucinogens
 - C. Depressants
 - D. Stimulants
 - E. Drug-control laws
 - F. Drug identification
 - G. Collection and preservation of drug evidence

- X. Forensic toxicology
 - A. Toxicology of alcohol
 - B. The role of the toxicologist
 - C. Techniques used in toxicology
 - D. The significance of toxicological findings

- XI. Forensic aspects of arson and explosion investigations
 - A. The chemistry of fire
 - B. Searching the fire scene
 - C. Collection and preservation of arson evidence
 - D. Analysis of flammable residues
 - E. Types of explosives
 - F. Collection and analysis of explosives

- XII. Forensic serology
 - A. The nature of blood
 - B. Forensic characterization of bloodstains
 - C. Stain patterns of blood
 - D. Preservation of blood evidence
 - E. Principles of heredity
 - F. Forensic characterization of semen
 - G. Collection of rape evidence

- XIII. DNA: a new forensic science tool
 - A. What is DNA?
 - B. DNA at work
 - C. Replication of DNA
 - D. Recombinant DNA: cutting and splicing DNA
 - E. DNA typing

- XIV. Fingerprints
 - A. History of fingerprinting

- B. Fundamental principles of fingerprints
 - C. Classification of fingerprints
 - D. Automated fingerprint identification systems
 - E. Methods of detecting fingerprints
 - F. Preservation of developed prints
- XV. Firearms, tool marks and other impressions
- A. Bullet comparisons
 - B. Cartridge cases
 - C. Gunpowder residues
 - D. Primer residues on the hands
 - E. Serial number restoration
 - F. Collection and preservation of firearm evidence
 - G. Tool marks
 - H. Other impressions
- XVI. Document and voice examination
- A. Handwriting comparisons
 - B. Collection of handwriting exemplars
 - C. Typewriting comparisons
 - D. Alterations, erasures and obliterations
 - E. Other document problems

REQUIRED TEXTBOOK AND MATERIALS:

None presently required.

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 686-3652 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.