

## **COURSE OUTLINE** **Introduction to Forensic Science**

### **Course Description**

AJ 121. Introduction to Forensic Science. 3 hours credit. This course will enable the student to understand the basics of career options in forensic science and its application in criminal cases through various scientific forensic disciplines such as pathology, anthropology, engineering, and bloodstain pattern analysis. A background in natural sciences is not necessary.

### **Course Relevance**

The concepts and principles learned in this course will provide the student with a broad base of information on forensic science and a better understanding of the various career options associated with forensic science disciplines.

### **Required Materials**

James, S.H. (2009). *Forensic science: An introduction*. (3<sup>rd</sup> ed.). Boca Raton, FL: CRC Press

### **Learning Outcomes**

The intention is for the student to be able to

1. Demonstrate an understanding of the concepts, terminologies, and techniques used in forensic science
2. Identify and appreciate the various forensic science disciplines and career options

### **Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course**

Through the student's involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Field Related Technology
  - Through the gathering and analysis of information related to concepts, techniques and skills in a forensic science discipline, the student will expand his/her awareness of specific technological skills related to those specific fields and vocational tasks.
2. Critical Thinking
  - The student will develop critical thinking and analytical skills through written assignments and other activities conducted in class.

Secondary skills (developed but not documented):

Problem Solving  
Listening  
Writing  
Team Work

Speaking  
Computer Literacy  
Internet Use  
Reading

### **Major Summative Assessment Task(s)**

These learning outcomes and the primary Learning PACT skills will be demonstrated by

1. Completion of a written project which demonstrates the understanding of concepts, skills, and techniques related to a specific forensic science discipline and/or career.

### **Course Content**

- I. Themes – Key recurring concepts that run throughout this course:
  - A. Role of the forensic expert
  - B. Duties and responsibilities of the forensic expert
  - C. Variety of forensic science disciplines
- II. Issues – Key areas of conflict that must be understood in order to achieve the intended outcome:
  - A. Limitations of the forensic sciences
  - B. Wide scope of the forensic science disciplines
  - C. Application of science to the law
- III. Concepts – Key concepts that must be understood to address the issues:
  - A. Understanding the capabilities of forensic science
  - B. Knowledge of the specific forensic science disciplines
- IV. Skills/Competencies – Actions that are essential to achieve the course outcomes:
  - A. Explain the role of the forensic scientist
  - B. List and describe the forensic science disciplines associated forensic pathology
  - C. Identify procedures associated with evaluation of the crime scene
  - D. Discuss the role of forensic science in the crime laboratory
  - E. List and describe the forensic science disciplines associated with forensic engineering
  - F. Discuss the impact of technology on forensic science
  - G. Describe the application of forensics to the social sciences
  - H. Explain the legal and ethical issues associated with forensic science

### **Learning Units**

- I. What a forensic scientist does
  - A. Law and science
  - B. Role of the forensic expert
  - C. Forensics and the scientific method
- II. Forensic pathology and related disciplines
  - A. Forensic pathology
  - B. Forensic nursing
  - C. Traumatic death investigation
  - D. Forensic toxicology
  - E. Forensic odontology

- F. Forensic anthropology
  - G. Forensic taphonomy
  - H. Forensic entomology
- III. Crime scene evaluation
- A. Crime scene investigation
  - B. Bloodstain pattern recognition
- IV. Forensic science in the laboratory
- A. The forensic laboratory
  - B. Biological fluid identification
  - C. DNA analysis
  - D. Trace evidence examination
  - E. Fingerprints
  - F. Forensic tire impression evidence
  - G. Firearm and tool mark examination
  - H. Questioned document examination
  - I. Controlled substance analysis
- V. Forensic engineering
- A. Structural failures
  - B. Fire and explosion investigation
  - C. Vehicular accident reconstruction
- VI. Cybertechnology and forensic science
- A. Computers in forensic science
  - B. Computer-related crime investigation
- VII. Forensic application of the social sciences
- A. Forensic psychology and psychiatry
  - B. Criminal profiling
- VIII. Legal and ethical issues in forensic science
- A. Ethics and the criminal justice system
  - B. Forensic evidence
  - C. Legal issues in forensic DNA

### **Learning Activities**

Lecture, instructor-led class discussions, group study, hands-on activities, field trips, library research, various audio/visual aids, case studies, guest speakers and student presentations.

### **Grade Determination**

The student will be graded on assessment task, written assignments, exams, quizzes, study guides, daily work, class participation, attendance, and other methods of evaluation at the discretion of the instructor.