Forensic and Criminal Investigations

Forensic and Criminal Investigations is a rapidly developing area of the Law, Public Safety, Corrections, and Security cluster. Forensic and criminal investigators provide assistance to fire fighters and law enforcement officers as well as the criminal justice system. This one-credit course focuses on career opportunities, safety, history of forensic science, criminal investigation, forensic serology and deoxyribonucleic acid (DNA) testing, forensic studies in anthropology, toxicology, fingerprinting, firearms, physics, and document examination.

Content standards in the course are not intended to serve as the entire curriculum. Teachers are encouraged to expand the curriculum beyond these minimum required content standards to accommodate specific community interests and utilize local resources. This course encourages critical thinking, use of the scientific method, integration of technology, development of student leadership skills, and application of knowledge and skills related to practical questions and problems. Safety concepts are integrated into instruction to the maximum extent possible.

Career and technical student organizations are integral, cocurricular components of each career and technical education course. These organizations serve as a means to enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and broaden opportunities for personal and professional growth.

Career Opportunities

Students will:

1. Explain career opportunities in forensic and criminal investigations.

Safety

2. Identify safety precautions for forensic and criminal investigators.

History of Forensic Science

3. Describe the history of forensic science.

Criminal Investigations

4. Explain criminal investigation procedures, including purpose and types.

5. Describe responsibilities of various personnel involved in crime scene investigations.
   Examples: police, detectives, laboratory specialists, medical examiners
   - Explaining techniques for searching, sketching, and recording data from a crime scene
6. Explain ways to collect and preserve evidence from a crime scene.
   - Distinguishing between physical evidence and witness evidence
   - Comparing the three main pattern types that combine to form an individual’s unique fingerprint
   - Explaining different methods of latent fingerprint development
   - Identifying origins of impressions, including footwear and tire tread
   - Describing ways to identify hair, fiber, and blood evidence

**Forensic Serology and Deoxyribonucleic Acid Testing**

7. Describe presumptive and confirmatory forensic tests.
   Examples: blood type comparison, DNA testing

8. Describe the importance of genetic information to forensics.
   - Using the process of gel electrophoresis for DNA fingerprinting

**Forensic Anthropology**

9. Describe the decomposition process.
   - Using rigor mortis to determine corpse position
   - Describing decomposition by-products used to determine cause of death
   - Using entomological life cycles to determine time of death

10. Identify the importance of skeletal remains in forensics.
    - Comparing bones and skulls based on age, sex, and race
    - Using forensic dentistry to establish identity

**Forensic Toxicology**

11. Describe general categories of drugs and poisons, including their effects on humans.
    - Explaining ways poisons are detected during autopsy

**Fingerprinting**

12. Explain fingerprinting methods and identification techniques.

**Firearm Forensics**

13. Distinguish between class and individual characteristics of firearms.
Physics in Forensics

14. Use laws of physics to explain forensic evidence.
   • Analyzing blood splatter patterns to determine speed, height, and direction
   • Tracking trajectories of collected evidence

Document Examination

15. Describe techniques used to determine the validity of forensic documents.
    Examples: fiber and handwriting analysis, ink chromatography