

Forensic Science 11

Learning Outcomes

Curriculum Organizers/Topics

Unit 1 – An Introduction to the World of Forensic Science

Learning outcomes

At the end of the unit, the students will be able to:

- Learn about forensic science as a field of study.
- Discuss the history and development of the field of forensic science.
- Examine some of the responsibilities that forensic scientists have in their work.
- Investigate the relationship between forensic science and the criminal justice system.
- Explore some of the specialty areas within forensic science.

Unit 2: The Crime Scene

Learning outcomes

At the end of the unit, the students will be able to:

- Discover how a crime scene is secured.
- Examine the different ways in which a crime scene is recorded.
- Learn how forensic scientists and officers search a crime scene for evidence.
- Investigate how evidence is collected and packaged.
- Learn why evidence needs to be collected carefully and within legal guidelines.

Unit 3: Physical Evidence

Learning outcomes

At the end of the unit, the students will be able to:

- Learn about the different types of evidence.
- Examine the difference between individual and class characteristics and what they mean for crime investigations.
- Discuss how physical and chemical properties help forensic scientists compare samples.
- Investigate glass fragments and soil as physical evidence and what they can tell forensic scientists about a crime.
- Discuss how impressions, like footprints and tire tracks, are collected and analyzed.

Unit 4: Physical Evidence : Hair, Blood and Fingerprints

Learning outcomes

At the end of the unit, the students will be able to:

- Learn about the physical structures of hair, blood, and fingerprints.
- Discuss how DNA can be found in hair collected from crime scenes.
- Investigate how stains are tested to determine if they are blood and if they are human blood.
- Learn about the different types of fingerprints.
- Examine how fingerprints are discovered and collected at a crime scene.

Mid-term Exam

Learning Outcomes

At the end of the unit, the students will be able to:

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first four units in this course (Note: You will be able to open this exam only one time.)

Unit 5: Firearms and Tool Marks

Learning outcomes

At the end of the unit, the students will be able to:

- Discuss how firearm and bullet evidence is collected from a crime scene.
- Learn why bullets fired from a gun can contain unique markings and striations.
- Examine how investigators can estimate the distance between a gun and a shooting victim.
- Investigate what information forensic scientists can learn from tool marks.
- Discuss how forensic scientists can recover serial numbers from firearms and vehicles.

Unit 6: Human Remains

Learning Outcomes

At the end of the unit, the students will be able to:

- Investigate some of the ways that can help determine the time of death.
- Learn about some different ways that bodies may decompose.
- Discuss what forensic scientists can learn from a forensic autopsy.
- Examine what information can be gained from skeletal remains.
- Learn about ongoing research into decomposition rates.

Unit 7: DNA Evidence

Learning outcomes

At the end of the unit, the students will be able to:

- Learn about the properties of DNA.
- Examine how and why DNA can be used as an individual characteristic in forensic science.
- Investigate how biological evidence is best collected and preserved for DNA testing.
- Discuss what tests are used on biological evidence to retrieve DNA information.
- Examine some of the considerations in using DNA in court trials.

Unit 8: Arson and Explosion Evidence

Learning outcomes

At the end of the unit, the students will be able to:

- Discuss what challenges arson and explosion crime scenes present in the collection, preservation, and analysis of evidence.
- Learn how investigators determine where a fire started and whether accelerants were used.
- Examine the different types of explosive materials that may be used in bombs and other explosions.
- Investigate how evidence at an arson scene is collected and tested.
- Discuss the methods used to test for explosive materials at crime scenes.