



Online Courses for High School Students

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Forensic Science II: More Secrets of the Dead

Although the crime scene represents the first step in solving crimes through forensic science, the crime laboratory plays a critical role in the analysis of evidence. This course focuses on the analysis of evidence and testing that takes place within this setting. We will examine some of the basic scientific principles and knowledge that guides forensic laboratory processes, such as those testing DNA, toxicology, and material analysis. Techniques such as microscopy, chromatography, odontology, entomology, mineralogy, and spectroscopy will be examined.

Prerequisite: Forensic Science I: More Secrets of the Dead

Course Length: One Semester

Required Text: None

Unit 1: Drug Evidence

The illegal drug trade is a major concern within North America for law enforcement and the criminal justice system. Forensic scientists play an important role in investigating and solving drug cases. Not only do they determine whether illegal drugs are present at a crime scene, but they also identify drugs and determine how they were used. In this unit, we will examine types of illegal drugs that forensic scientists often deal with and learn about some of the laboratory tests that are used to identify drugs.

What will you learn in this unit?

- Identify different types of drugs and their effects
- Describe common ways that samples can be taken for drug testing
- Consider issues in collecting and preserving drug evidence
- Discuss screening tests and their uses in criminal investigations
- Discuss confirmatory tests and their uses in criminal investigations

Unit 2: Forensic Toxicology

Arsenic, cyanide, and strychnine have all been used to harm individuals throughout the course of history. Although poisoning may not be the most common way of trying to kill someone, it does happen, and forensic scientists play an important role in determining what has occurred. In this unit, we will explore some of the poisonous substances that exist and how forensic scientists test for and identify poisons.

What will you learn in this unit?

- Discuss the history of forensic toxicology
- Name some poisonous substances that have been used in history
- Discuss techniques used by forensic scientists to identify poisons and other toxins
- Describe what makes some toxic substances popular for trying to harm others
- Understand the role of toxicologists in criminal investigations

Unit 3: Forgeries and Document Examination

During crime investigations, forensic scientists may be called upon to determine whether a paper, signature, or other document is authentic or whether it is fake. In this unit, we will examine the area of document examination. Document examination may include comparing the handwriting of several samples, linking documents to the particular machines that created them, and identifying counterfeit papers and money. We will discuss some of the aspects that document examiners look for in comparing documents and some of the techniques they use to find alterations in documents.

What will you learn in this unit?

- Talk about questioned documents and exemplars
- Describe some of the aspects that document examiners use to compare handwriting
- Understand some of the aspects that document examiners use to compare typescript
- Discuss some of the ways that document alterations can be found
- Discuss how document examiners find forgeries and counterfeit materials

Unit 4: Paint, Soil, and Other Trace Evidence

Trace evidence left at a crime scene can yield important clues about the victim, perpetrator, and the crime. In this unit, we will examine some of the trace forms of evidence that forensic scientists may use to solve crimes. These may include paint chips, pieces of metal, soil, and so on. We will examine some of the techniques that forensic scientists use to identify and compare these pieces of evidence.

What will you learn in this unit?

- Describe the different types of microscopes used in the forensic laboratory
- Discuss how paint, soil, and fiber evidence is collected
- Discuss some of the techniques used to test and compare paint and fiber evidence
- Discuss polymers and their role in synthetic fibers
- Understand what comparisons between fiber and paint evidence and known samples can tell forensic scientists

Unit 5: Forensic Entomology

In some criminal investigations, forensic scientists examine insects and other arthropods. In this unit, we will explore the area of forensic entomology and its use in criminal investigations. We will learn about the history of forensic entomology and the types of insects commonly encountered in crime investigations. We will also examine some of the tests and techniques used to study the insects.

What will you learn in this unit?

- Define forensic entomology and its uses
- Discuss the history of forensic entomology
- Discuss what insects and arthropods are common as evidence in criminal investigations
- Describe some of the tests used in forensic entomology
- Understand studies into insect activity as they relate to forensic science

Unit 6: Forensic Anthropology

Bodies, bones, and teeth can provide investigators with important information about how someone died. In this unit, we will explore the areas of forensic anthropology and facial reconstruction. We will consider some of the clues that forensic scientists look for when examining bodies and skeletons.

What will you learn in this unit?

- Discuss the fields of forensic anthropology and forensic odontology
- Outline the history of forensic anthropology
- Describe some of the characteristics of bones and teeth that provide forensic scientists with information about the person
- Describe some of the tests used in the area of forensic anthropology
- Understand the use of forensic anthropology in the criminal justice system

Unit 7: Digital Evidence

Digital devices play an important role not only in our daily lives, but also in criminal investigation. In this unit, we will learn about the evidence that can be gained from computers and other devices. We will consider how information can be retrieved from devices, and how digital evidence should be preserved.

What will you learn in this unit?

- Understand the different parts of computers
- Discuss the areas of a device from which information can be retrieved
- Analyze how digital evidence can be collected and preserved
- Describe the different types of data available on devices and the internet
- Discuss the use of forensic images

Unit 8: Computers & The Future of Forensic Science

As technology has changed and advanced, so has forensic science. In this unit, we will consider a few of the new techniques that are being used in forensic investigations. We will learn more about databases that forensic scientists use in their work. We will also examine challenges in forensic science and what the future of forensic science may hold.

What will you learn in this unit?

- Discuss how new technology is being used in forensic science
- Discuss some of the recent advances in forensic techniques and testing
- Analyze how advances in other disciplines impact forensic science
- Understand some current limitations and challenges of forensic science investigations
- Discuss some of the possible future changes in forensic science