

Forensic Science 2: More Secrets of the Dead Course Syllabus

What you will learn in this course

Forensic Science 2: 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.

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?

- Learn about some of the different types of drugs and their effects.
- Examine some of the common ways that samples can be taken from humans to test for drugs.
- Consider some of the issues in collecting and preserving drug evidence.
- Investigate 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?

- Learn what poisonous substances have been used in history.
- Understand how poisons are absorbed and transmitted through the body.
- Discuss techniques used by forensic scientists to identify poisons and other toxins.

- Examine the collection and preservation of blood evidence.
- Consider 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?

- Learn about questioned documents and exemplars.
- Examine some of the aspects that document examiners use to compare handwriting.
- Investigate some of the aspects that document examiners use to compare typescript.
- Discuss some of the ways that document alterations can be found.
- Learn more about 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?

- Learn how protons, neutrons, electrons, and other aspects are used by forensic scientists to study trace evidence.
- Learn about the nature of matter and its relationship to elements and compounds.
- Consider the usefulness of various forms of trace evidence in investigating crimes.
- Learn about different types of microscopes and how they work.
- Examine some of the tests used to identify and compare trace evidence.

Forensic Science 2 Midterm Exam

- 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: 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.
- Learn about the history of forensic entomology.
- Examine what insects and arthropods are common pieces of evidence in criminal investigations.
- Investigate some of the tests used in forensic entomology.
- Learn about studies into insect activity as they related 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?

- Learn about the areas of forensic anthropology and forensic odontology.
- Discuss the history of forensic anthropology and odontology.
- Consider some of the characteristics of bones and teeth that provide forensic scientists with information about the person.
- Examine some of the tests used in the area of forensic anthropology.
- Investigate 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 computer where information can be retrieved.
- Examine how internet activity can be traced.
- Investigate how emails and other aspects can be traced and examined.
- Consider how computer evidence can be collected and preserved.

Unit 8: 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?

- Consider how computers are being used in forensic science.
- Discuss some of the recent advances in forensic techniques and testing.
- Learn about how advances in other disciplines impact forensic science.
- Examine some of current limitations of forensic science investigations.
- Investigate some of the possible future changes in forensic science.

Forensic Science 2 Final Exam

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

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