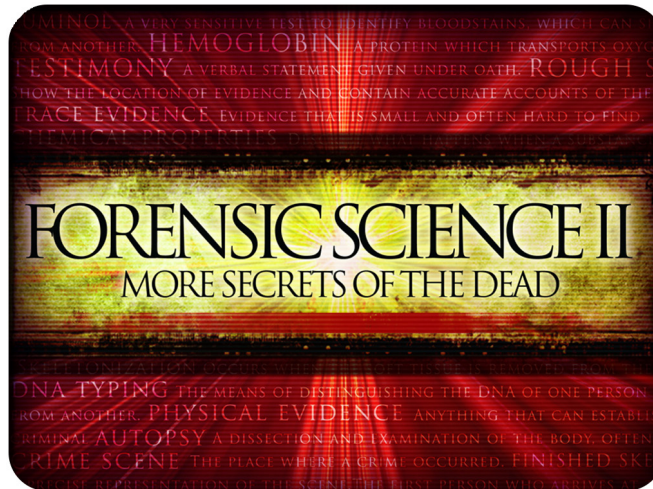


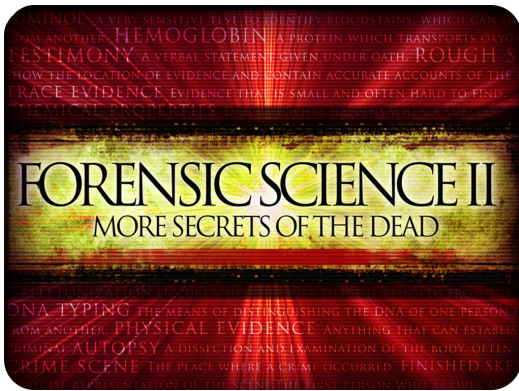


eDynamicLearning

CAREER & ELECTIVE COURSES



Course Syllabus



**Course Code:** EDL022

# Forensic Science II: More Secrets of the Dead

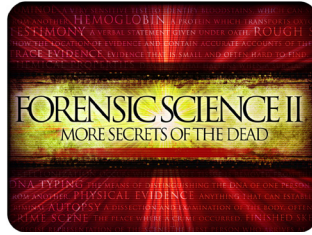
## Course Description

Every time a crime is committed, a virtual trail of incriminating evidence is left behind just waiting to be found and analyzed. In Forensic Science II: More Secrets of the Dead, you'll learn even more about the powerful science of forensics and how it has changed the face of crime and justice in our world. You will learn some basic scientific principles used in the lab, such as toxicology, material analysis, microscopy, and forensic anthropology and find out how scientists use everything from insects to bones to help them solve crimes. Discover how advanced techniques and methodical processes can lead to catching even the craftiest criminal. The best way to battle crime these days is not with a weapon, but with science.

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## Lesson 1: Drug Evidence

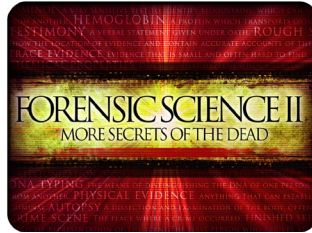
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### Lesson Summary

The illegal drug trade has been a major concern within North America for law enforcement and the criminal justice system. It is not surprising, then, that this area also presents a major area for forensic science. Forensic scientists play an important role in investigating and solving drug cases. Not only do they help to identify whether illegal drugs are present at a crime scene, but they also help identify the particular drugs and how they may have been involved in different crimes. In this unit, we will examine some of the different types of illegal drugs that forensic scientists often deal with and learn about some of the laboratory tests that are used to identify drugs.

### Learning Objectives

- Identify some of the different types of drugs and their effects.
- Describe 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.
- Discuss screening tests and their uses in criminal investigations.
- Discuss confirmatory tests and their uses in criminal investigations.



## Lesson 2: Forgeries & Document Examination

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### Lesson Summary

During crime investigations, forensic scientists may be called upon to determine whether a paper, signature, or other created 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.

### Learning Objectives

- 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.



## Lesson 3: Forensic Toxicology

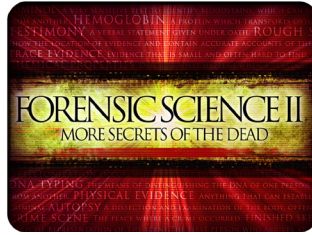
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### Lesson Summary

Arsenic, cyanide, and strychnine have all been used to try to harm other 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.

### Learning Objectives

- 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.



## Lesson 4: Paint, Soil, & Trace Evidence

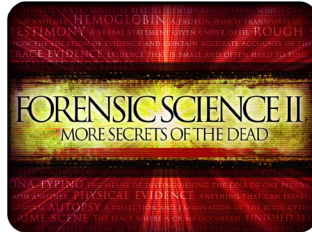
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### Lesson Summary

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

### Learning Objectives

- Describe the different types of microscopes used in the forensic laboratory.
- Discuss how paint 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.



## Midterm Exam

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### Learning Objectives

- 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.)



## Lesson 5: Forensic Entomology

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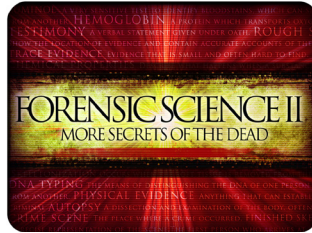
### Lesson Summary

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.

### Learning Objectives

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





## Lesson 6: Forensic Anthropology

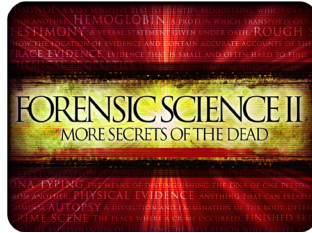
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### Lesson Summary

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 aspects that forensic scientists look for when examining bodies and skeletons.

### Learning Objectives

- Discuss the areas of forensic anthropology and forensic odontology.
- Outline the history of forensic anthropology and odontology.
- 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.



## Lesson 7: Digital Evidence

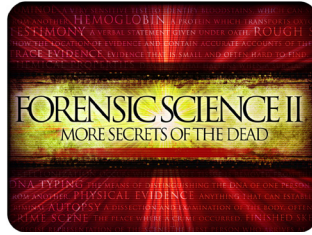
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### Lesson Summary

Computers are increasingly playing an important role not only in our daily lives, but also in the area of criminal investigation. In this unit, we will learn about the evidence that can be gained from computers and other electronic devices. We will consider how information can be retrieved from computers and how computer evidence should be preserved.

### Learning Objectives

- Understand the different parts of computers.
- Discuss the areas of a computer where information can be retrieved.
- Analyze how computer evidence can be collected and preserved.
- Describe the different types of data available on computers.
- Discuss the use of forensic images.



## Lesson 8: The Future of Forensic Science

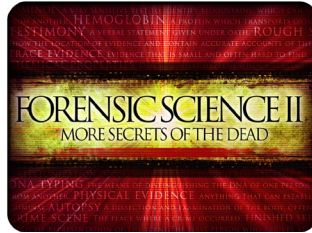
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### Lesson Summary

As technology has changed and advanced so too has the area of forensic science. In this unit, we will consider how computers are being used in forensic investigations. We will look at how forensic scientists retrieve web-based information as evidence and investigate the problem of hacking. We will learn more about some of the databases that forensic scientists use in their work. We will also examine what the future of forensic science may hold and how crime investigation is likely to change.

### Learning Objectives

- Discuss how computers are 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 of forensic science investigations.
- Discuss some of the possible future changes in forensic science.



## Final Exam

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### Learning Objectives

- 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.)