Syllabus

Introduction to Forensic Science

Course Overview

This one-semester course is intended for you to familiarize yourself with the knowledge and skills required for a career in Forensic Science. This course has 15 lessons organized into four units, plus four Unit Activities. Each lesson contains one or more Lesson Activities.

In Introduction to Forensic Science, you will learn about the importance and limitations of forensic science and explore different career options in this field. You will also learn to process a crime scene, collect and preserve evidence, and analyze biological evidence such as fingerprints, blood spatter, and DNA. Moreover, you will learn to determine the time and cause of death in homicides and analyze ballistic evidence and human remains in a crime scene. Finally, you will learn about forensic investigative methods used in arson, computer crimes, financial crimes, and forgeries.

Your teacher will grade your work on the Unit Activities, and you will grade your work on the Lesson Activities by comparing them with the given sample responses. The Unit Activities (submitted to the teacher) and the Lesson Activities (self-checked) are major components of this course. There are other assessment components, namely the mastery test questions that feature along with the lesson; the pre- and post-test questions that come at the beginning and end of the unit, respectively; and an end-of-semester test. All of these tests are a combination of simple multiple-choice questions and technology-enhanced (TE) questions.

Course Goals

By the end of this course, you will be able to do the following:

- Explain forensic science and its role in the legal system.
- Discuss protocols and procedures involved in processing a crime scene.
- Describe the methods used to analyze the chemical composition of evidence.
- Describe methods and tools that use properties of light to analyze evidence.
- Explain procedures involved in fingerprint analysis, substance analysis, serology, and deoxyribonucleic acid (DNA) analysis.
- Apply postmortem decomposition and entomology to determine the time and cause of death.
- Explain the relevance of anthropology in forensic science.

- Explain the use of forensic science in arson, computer and financial crimes, and forgeries.

General Skills

To participate in this course, you should be able to do the following:

- complete basic operations with word-processing software, such as Microsoft Word or Google Docs
- complete basic operations with presentation software, such as Microsoft PowerPoint or Google Docs presentation
- perform online research using various search engines and library databases
- communicate through email and participate in discussion boards

For a complete list of general skills that are required for participation in online courses, refer to the Prerequisites section of the Plato Student Orientation document, found at the beginning of this course.

Credit Value

Introduction to Forensic Science is a 0.5-credit course.

Course Materials

- notebook
- pencil or pen
- computer with Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft PowerPoint or equivalent

Course Pacing Guide

This course description and pacing guide is intended to help you keep on schedule with your work. Note that your course instructor may modify the schedule to meet the specific needs of your class.

Unit 1: Forensic Science Overview

Summary

This unit focuses on the history and importance of forensic science, career options available to forensic science professionals, and protocols and procedures involved in processing a crime scene. In this unit, you will learn about the major contributors of forensic science and its importance and limitations. You will also explore different career options in this field, identify the organizations that employ forensic science professionals, and analyze the ethical and legal standards required in the profession. Finally, you will learn how to secure and process a crime scene.

Day	**Activity/***Objective*	Type
1 day: 1	**Syllabus and Plato Student Orientation** *Review the Plato Student Orientation and Course Syllabus at the beginning of this course.*	Course Orientation
4 days: 2–5	**What Is Forensic Science?** *Describe forensic science and its role in the legal system.*	Lesson
4 days: 6–9	**Roles and Responsibilities** *Describe the careers available to forensic science professionals.*	Lesson
5 days: 10–14	**Processing a Crime Scene** *Describe the protocols and procedures involved in processing a crime scene.*	Lesson
1 day: 15	**Space Jumble**	Game
4 days: 16–19	**Unit Activity and Discussion—Unit 1**	Unit Activity Discussion
1 day: 20	**Posttest—Unit 1**	Assessment

Unit 2: Physical Evidence

Summary

This unit focuses on collecting and analyzing physical and trace evidence from crime scenes. In this unit, you will learn to follow crime scene protocol to systematically search for physical evidence in a crime scene. You will explore how to collect and preserve evidence from a crime scene and perform chemical analysis to determine their chemical composition. Additionally, you will examine light sources used by forensic investigators to detect and analyze physical evidence from a crime scene. Finally, you will learn about the procedures used to identify and process trace evidence.

Day	**Activity/***Objective*	Type
4 days: 21–24	**Collecting Physical Evidence** *Describe the procedures for collecting evidence from a crime scene correctly.*	Lesson
4 days: 25–28	**Chemical Analysis of Evidence** *Describe the methods used to analyze the chemical composition of evidence recovered from a crime scene.*	Lesson
4 days: 29–32	**Detecting and Analyzing Evidence Using Light** *Explore methods and tools that use properties of light to analyze evidence.*	Lesson
4 days: 33–36	**Trace Evidence** *Describe methods to process and analyze trace evidence discovered at a crime scene.*	Lesson
1 day: 37	**Space Jumble**	Game
4 days: 38–41	**Unit Activity and Discussion—Unit 2**	Unit Activity Discussion
1 day: 42	**Posttest—Unit 2**	Assessment

Unit 3: Biological Evidence

Summary

This unit focuses on the analysis of biological evidence such as fingerprint, blood spatter, and DNA recovered from crime scenes. In this unit, you will learn about major fingerprint patterns and explore methods used to recover fingerprint evidence from a crime scene. You will learn how the human body metabolizes alcohol and explore the procedures to detect blood alcohol levels. You will also analyze antigens and antibodies in human blood and determine the genotype and phenotype. Finally, you will learn about the components of a DNA molecule and explore the process to extract, preserve, and analyze DNA evidence.

Day	**Activity/***Objective*	Type
4 days: 43–46	**Fingerprint Analysis** *Describe the procedures involved in fingerprint analysis.*	Lesson
4 days: 47–50	**Toxicology** *Explore laboratory procedures for analyzing substances such as alcohol and drugs.*	Lesson
4 days: 51–54	**Blood Spatter and Serology** *Discuss blood spatter analysis and serology procedures.*	Lesson
4 days: 55–58	**DNA** *Explore laboratory procedures used to analyze deoxyribonucleic acid (DNA).*	Lesson
1 day: 59	**Para Jumble**	Game
4 days: 60–63	**Unit Activity and Discussion—Unit 3**	Unit Activity Discussion
1 day: 64	**Posttest—Unit 3**	Assessment

Unit 4: Homicide and Other Forensic Investigations

Summary

This unit focuses on homicide investigation, ballistics and tool mark analysis, relevance of anthropology, and forensic investigations of other crimes. In this unit, you will learn how postmortem decomposition and entomology help in determining the time and cause of death. You will also explore methods to analyze bullet and tool marks left at the crime scene and use principles of anthropology in determining the age and gender of victims. Finally, you will learn about investigative methods used in arson, computer crimes financial crimes, frauds, and forgeries.

Day	**Activity/***Objective*	Type
4 days: 65–68	**Time and Cause of Death** *Determine the time and cause of death of a human body by analyzing postmortem decomposition.*	Lesson
5 days: 69–73	**Ballistics and Tool Marks** *Explore methods to analyze bullet and tool mark impressions.*	Lesson
5 days: 74–78	**Principles of Anthropology** *Describe the relevance of anthropology in forensic science.*	Lesson
4 days: 79–82	**Other Forensic Investigations** *Explore forensic science in relation to different types of crimes.*	Lesson
1 day: 83	**Para Jumble**	Game
4 days: 84–87	**Unit Activity and Discussion—Unit 4**	Unit Activity Discussion
1 day: 88	**Posttest—Unit 4**	Assessment
1 day: 89	**Course Review**	

Day	Activity/*Objective*	Type
1 day: 90	**End-of-Course Exam**	Assessment