

Course Title: CSI/Forensic Science
Board Approval Date: September 15, 2020
Credit / Hours: 1.0

Course Description:

The main focus of this course will be to emphasize the evidential value of the crime scene and related evidence and the services of what has become known as the crime laboratory. This course combines basic theory and real laboratory experiments, creating an experiment-based situation for a better understanding of the criminal and civil laws that are enforced by police agencies in a criminal justice system. The experiments used reinforce previously learned scientific principles rooted in Biology, Chemistry and Physics. Major topics include processing a crime scene, collecting and preserving evidence, identifying types of physical evidence, organic and inorganic analysis of evidence, hair, fibers, toxicology, serology, DNA, fingerprints, firearms, and document analysis.

Learning Activities / Modes of Assessment:

Large Group Instruction	Role Playing/Simulations
Tests and Quizzes	Computer/iPad Simulations
Various Websites	Lab Experiments/Analysis
Small Group Projects	Research Presentations
Student Response Systems	Audio/Visual Media

Instructional Resources:

BERTINO, ANTHONY J. *FORENSIC SCIENCE: Fundamentals & Investigations*. CENGAGE LEARNING, 2020.

Various Websites

Various Applicable Media

Curriculum: Dover Area School District
 Course: CSI/Forensic Science
 TOPIC: Logic, Reasoning, and Observation

6 days

Know:	Understand:	Do:
<p>Solving problems involves keen observation skills.</p> <p>Memory and eyesight are less reliable than forensic evidence.</p> <p>Bias and context can influence what you may think.</p> <p>Humans have more trouble with memory when varying stimuli are occurring simultaneously.</p> <p>VOCAB:</p> <p style="text-align: center;">Inference</p> <p style="text-align: center;">Observation Deduction</p> <p style="text-align: center;">Induction</p> <p style="text-align: center;">Logic</p> <p style="text-align: center;">Opinion</p> <p style="text-align: center;">Fact</p>	<p>The difference between fact and opinion is evidence and research based.</p> <p>Your eyes can play tricks on your brain.</p> <p>Your attention span and memory are not as powerful as you think.</p> <p>Bias and context require the use of evidence to determine guilt.</p>	<p>Identify questions for witnesses based on evidence accumulation.</p> <p>Work with bias and prejudice to see they can influence decisions.</p> <p>See various techniques where context and illusion can distort evidence.</p>

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Intro to Forensic Science

9 days

Know:	Understand:	Do:
<p>Historical Timeline of Advances in Forensic Science</p> <p>Anthropometry/Bertillon Method was a way investigators kept track of criminals. This method was based on measurements of various parts.</p> <p>Branches of Forensic Science</p> <p>Legal Proceedings in a Criminal Case</p> <p>VOCAB:</p> <ul style="list-style-type: none"> Ballistics Criminalistics Entomology Logic Opinion Polygraphy Probable Cause Analytical Skills Case Law Deductive Reasoning 	<p>The principles of scientific method are required in ALL forensic scientific analysis.</p> <p>Forensic science utilizes concepts from all scientific disciplines.</p> <p>Locard's exchange principal</p> <p>Comprehensive crime laboratories provide a variety of services including, but not limited to, a physical science unit, biology unit, firearms unit, document examination unit, photography unit, toxicology, fingerprint analysis, polygraph administration, voiceprint analysis, and crime-scene investigation.</p>	<p>Define forensic science and list the major disciplines it encompasses.</p> <p>Identify the major contributors to the development of forensic science and explain how scientific advancements account for the rapid growth of forensic laboratories in the past 40 years.</p> <p>Describe Locard's Exchange principle.</p> <p>Compare and contrast Frye and Daubert decisions relating the admissibility of scientific evidence in the courtroom and explain the role and responsibilities of the expert witness.</p> <p>Analyze how scientific advancements have contributed to the more effective use of forensic science in solving crimes.</p>

Evidence		
Eye Witness		
Fact		
Forensic		
Indict		
Observation		
Odontology		
Pathology		
Perception		
Statutory Law		

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Crime Scene Investigation

10 days

Know:

Understand:

Do:

<p>Testimonial Evidence is a witness statement.</p> <p>Physical Evidence is an object or material relevant to the crime.</p> <ul style="list-style-type: none">- Can prove that there was a crime in the first place- Can back up or disprove witness statements- Can link a suspect to victim or crime scene- Can determine identify of person linked to crime- Can allow investigators to reconstruct the crime <p>Class data can be used to narrow a suspect down to one person out of a large group of people based on known characteristics.</p> <p>Information at crime scenes must be gathered in a systematic way:</p> <ul style="list-style-type: none">- Preservation and isolation of the scene- Observations and documentation- Note-taking- Photographs and/or videotape- Sketches- Search for evidence- Collecting and packaging evidence- Chain of custody- Investigation <p>VOCAB:</p>	<p>Forensic science utilizes concepts from all scientific disciplines.</p> <p>The principles of scientific method are required in ALL forensic scientific analysis.</p> <p>Physical evidence is indispensable in crime scene recreation.</p> <p>Physical evidence is crucial in linking victims and suspects to a crime scene.</p> <p>Physical evidence must be collected in a specific and strategic manner, as well as systematically documented, in order to ensure that no tampering or contamination occurs.</p> <p>Physical evidence can link specific persons or objects to a crime scene, or may contain class characteristics linking a type of object to a crime scene.</p> <p>Physical evidence collected from crime scenes (i.e. fingerprints and DNA) are shared on national databases. This dramatically enhances the</p>	<p>Define the crime scene and identify the steps followed in crime scene investigation.</p> <p>Describe the use and information obtained from physical evidence found at the crime scene.</p> <p>Demonstrate proper documentation of the crime scene, various techniques used to effectively search a crime scene and proper techniques used to collect, package, and preserve physical evidence at a crime scene.</p> <p>Summarize and present crime scene reports including sketches, photographs, notes and lab analysis results.</p> <p>Identify the common types of physical evidence encountered at crime scenes and describe proper techniques for packaging common types of physical evidence.</p> <p>Explain the difference between the identification and comparison of physical evidence.</p> <p>Define and contrast individual and class characteristics of physical evidence.</p>
--	---	--

Chain of Custody	role of forensic science in criminal investigation.	Assess the value of class characteristics to crime scene investigation.
Circumstantial Evidence		
Class Evidence		
Control Sample		
Crime Scene		
Crime-Scene Investigation		
Crime-Scene Reconstruction		
Direct Evidence		
First Responder		
Individual Evidence		
Paper Bindle		
Primary Crime Scene		
Secondary Crime Scene		
Trace Evidence		

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Hair Analysis

7 days

Know:

Understand:

Do:

<p>Trace evidence is any physical evidence that is too small to make physical matches but large enough to be analyzed.</p> <p>Hair is one type of class evidence.</p> <p>Based on the Locard Exchange Principle, hair (and other materials) can be directly transferred to other materials.</p> <p>Hair can differ among individuals and animals based on texture, color and cuticle scale patterns.</p> <p>Drugs and other chemicals can be deposited into hair through the blood system.</p> <p>VOCAB:</p> <p>Class Evidence</p> <p>Comparison Microscope</p> <p>Cortex</p> <p>Cortical Fusi</p> <p>Cuticle</p> <p>Hair Follicle</p> <p>Individual Evidence</p>	<p>Human hair is a form of class evidence if no follicle is present.</p> <p>The follicle of a human hair contains DNA.</p> <p>The main function of hair is to help regulate body temperature.</p> <p>Class evidence such as hair and fiber is used to match individuals to crime scenes.</p> <p>Class evidence is not unique to individuals but is used with statistical analysis to place individuals at the crime scene.</p> <p>Hair can be used to analyze for drugs and poisons.</p>	<p>Identify the various parts of hair.</p> <p>Describe variations in the structure of the medulla, cortex, and cuticle.</p> <p>Distinguish between human and nonhuman animal hair.</p> <p>Explain how hair can be used in a forensic investigation.</p> <p>Calculate the medullary index for a hair.</p> <p>Distinguish hairs from individuals belonging to the broad racial categories.</p> <p>Determine if two examples of hair are likely to be from the same person.</p>
---	--	--

<p>Keratin</p> <p>Medulla</p> <p>Melanin Granules</p> <p>Metabolite</p> <p>Micrometer</p> <p>Morphology</p> <p>Neutron Activation Analysis</p> <p>Trace Evidence</p>		
--	--	--

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Fiber Analysis

7 days

Know:

Understand:

Do:

<p>Trace evidence is any physical evidence that is too small to make physical matches but large enough to be analyzed.</p> <p>Fibers can be identified using microscopes and by observing their chemical properties.</p> <ul style="list-style-type: none">- They are examples of trace and class evidence since fibers offer no individuality.- The ability of fibers to transfer to other materials allows it to be used as trace evidence.- There are two types of fibers: natural and synthetic <p>Certain properties of fibers help investigators determine its origins:</p> <ul style="list-style-type: none">- Burning- Thermal decomposition- Chemical composition- Density- Fluorescence <p>VOCAB:</p> <p>Amorphous</p> <p>Crystalline</p> <p>Direct Transfer</p> <p>Fiber</p> <p>Filament</p>	<p>Fibers are classified as natural or synthetic. Textiles refer to the weaving patterns of fibers.</p> <p>Class evidence such as hair and fiber is used to match individuals to crime scenes.</p> <p>Class evidence is not unique to individuals but is used with statistical analysis to place individuals at the crime scene.</p> <p>Fibers can be identified and characterized by chemical and physical properties.</p>	<p>Identify and describe common weave patterns of textile samples.</p> <p>Compare and contrast various types of fibers through physical and chemical analysis.</p> <p>Describe principal characteristics of common fibers used in their identification.</p>
---	---	---

Inorganic		
Mineral Fiber		
Monomer		
Natural Fiber		
Plastic		
Polymer		
Polypeptide		
Secondary Transfer		
Synthetic Fiber		
Textile		
Warp		
Weft		
Yarn		

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Fingerprint Analysis

8 days

Know:

Understand:

Do:

<p>All fingerprints fit three basic patterns.</p> <ul style="list-style-type: none">- Loop patterns feature a ridge that makes a "U" shape.- Whorl patterns feature a spiral shaped ridge.- Arch patterns feature a ridge that goes across the finger. <p>Probability is used to determine the likelihood that a fingerprint belongs to a certain individual by comparing to population statistics.</p> <p>Individual ridge characteristics are compared between evidence and suspect.</p> <p>Powder is used to visualize latent prints, which can then be lifted using clear sticky tape.</p> <p>Chemical methods for developing latent prints by reacting with the residue left by the finger to create a visible mark.</p> <p>VOCAB:</p> <p style="text-align: center;">Arch</p> <p style="text-align: center;">Core</p> <p style="text-align: center;">Dactylscopy</p>	<p>Explain the history and development of fingerprints as identifying features for civil and law enforcement agencies.</p> <p>Fingerprints are unique to individuals and can be used as evidence in arguing which individuals were present at a crime scene.</p>	<p>Analyze the common ridge characteristics of a fingerprint.</p> <p>Identify and compare the three major fingerprint patterns and their respective subclasses.</p> <p>Distinguish between visible, plastic and latent fingerprints</p> <p>Describe the concept of an automated fingerprint identification system (AFIS) and its importance to forensic investigation.</p> <p>List and demonstrate the techniques for developing latent fingerprints on porous and nonporous objects.</p>
--	--	---

<p>Delta</p> <p>Fingerprint</p> <p>Latent Fingerprint</p> <p>Loop</p> <p>Minutiae</p> <p>Patent Fingerprint</p> <p>Plastic Fingerprint</p> <p>Ridge Pattern</p> <p>Whorl</p>		
--	--	--

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Blood Spatter and Serology

8 days

Know:

Understand:

Do:

<p>Trace evidence is any physical evidence that is too small to make physical matches but large enough to be analyzed.</p> <p>Serology is the study of blood. Red blood cells have antigens on their surface - A and B. There are four blood types: A, B, AB and O.</p> <p>Humans have antibodies against antigens not present in our bodies.</p> <p>Blood typing determines the blood type of an individual by exposing a sample of blood to antibodies.</p> <p>Agglutination occurs when those antibodies and antigens are combined.</p> <p>Blood-spatter evidence can be analyzed by calculating/observing various aspects.</p> <p>Forensic scientists use various methods to test for the presence of blood that includes the following tests: Kastle-Meyer Presumptive blood testing, luminol testing.</p> <p>Point of origin helps investigators to compare blood spatter evidence with testimonial evidence of</p>	<p>Serology involves a broad scope of laboratory tests that use specific antigen and serum antibody reactions.</p> <p>Blood type is an inherited trait that is a permanent feature of a person's biological makeup.</p> <p>Blood may link criminals to crime or crime scene.</p> <p>Individual blood stains can convey the directionality and of impact of the blood when it struck a surface.</p> <p>Crime scene reconstruction helps to sort out the events surrounding the occurrence of a crime.</p>	<p>Explain the composition of blood.</p> <p>Describe the function of blood cells.</p> <p>Describe the history of the use of blood and blood-spatter analysis in forensic science.</p> <p>Describe how to determine blood type, given a sample.</p> <p>Describe how to screen for the presence of human blood.</p> <p>Calculate the probability of certain blood types within a population.</p> <p>Conduct a blood spatter analysis</p> <p>Use blood spatter evidence to recreate the events of a crime scene</p>
---	--	--

witnesses and victims.
Inconsistencies between the
two can be determined.

The PO is used to calculate
the height about the floor
level where the wound was
inflicted.

VOCAB:

Agglutination

Antibodies

Antigen

Antigen- Antibody Response

Cell-surface Protein

Erythrocyte

Leukocyte

Lines of Convergence

Plasma

Point of Origin

Presumptive

Red Blood Cells

Satellite Drops

Secretor

Serology

White Blood Cells

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: DNA Fingerprinting

8 days

Know:

Understand:

Do:

<p>DNA is found in the nuclei of living cells and is the genetic make-up of individuals.</p> <p>Genes are portions of DNA which code for a specific protein which determine a specific trait.</p> <p>DNA is wound into a specific structure called chromosomes.</p> <p>DNA Fingerprinting is a method used by investigators to compare suspects to crime scenes or for genetic relations.</p> <p>Pieces of DNA are cut using restriction enzymes and compared with known DNA of suspects.</p> <p>In cases where there is little DNA evidence at a crime scene, investigators can use the PCR technique to make more copies to work with.</p> <p>The use of mitochondrial DNA can be used to identify missing persons.</p> <p>VOCAB:</p> <p>Allele</p> <p>Chromosome</p> <p>DNA Fingerprint</p>	<p>Apply the principles of DNA as a means to identifying one person with a reasonable certainty.</p> <p>Describe the differences in nuclear DNA, mitochondrial DNA.</p> <p>DNA evidence is highly important as, upon proper handling, it can directly link an individual to a crime scene.</p> <p>Understand the significance of the development of DNA technology to forensic science and be able to compare segments of DNA and describe the use of DNA profiling in the CODIS database.</p>	<p>Identify the parts of a nucleotide and explain how nucleotides are linked to form DNA and explain the concept of base pairing as it relates to the double-helix structure of DNA.</p> <p>Describe how the newest DNA typing techniques, like short tandem repeats (STRs) and polymerase chain reaction (PCR) are applied to forensic DNA typing and how CODIS is used to compare DNA samples.</p> <p>List the necessary procedures for proper preservation of biological evidence for laboratory DNA analysis.</p>
--	--	---

<p>DNA Probe</p> <p>Electrophoresis</p> <p>Gene</p> <p>Mitochondrial DNA</p> <p>Mitochondrion</p> <p>Polymerase Chain Reaction (PCR)</p> <p>Restriction Enzyme</p> <p>Short Tandem Repeat (STR)</p> <p>Variable Number Tandem Repeat (VNTR)</p>		
---	--	--

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Toxicology

8 days

Know:

Understand:

Do:

<p>Trace evidence is any physical evidence that is too small to make physical matches but large enough to be analyzed.</p> <p>The dosage of a substance determines whether it is poisonous and how poisonous it is.</p> <p>Elements of toxicology:</p> <ul style="list-style-type: none">- Chemical and physical form of a substance- How it enters the body- Body weight and the physiological conditions of the victim (age and sex)- Time period of exposure- Presence of other chemicals in the body or in the dose <p>The lethal dose (LD50) is used to measure toxicity.</p> <p>Drugs can affect the function and structure of living systems.</p> <p>The use and purchase of controlled drugs can lead to increased violence, crime and health and social problems.</p> <p>There are several categories of controlled drugs:</p> <ul style="list-style-type: none">- Hallucinogens- Stimulants- Narcotics- Depressants	<p>Chemical compounds are classified in the Controlled Substances Act are regulated by the United States government.</p> <p>Understand the significance of drug analysis and toxicology to forensic investigations and will be able to identify various drugs and describe methods drug analysts and toxicologists use in identifying substances.</p> <p>Toxicology has a long historical presence and many applications in assessing possible cause of death.</p> <p>Describe techniques that forensic toxicologists use to isolate and identify drugs and poisons.</p> <p>How alcohol is absorbed and processing in a living system.</p>	<p>Identify unknown substances by utilizing a series of chemical tests of the chemical and physical properties of substances</p> <p>Explain what LD50 is and how it is determined for different substances and use it to classify how toxic a substance is</p> <p>Explain human metabolism of alcohol and calculate blood alcohol content.</p>
--	--	--

- Prescription and
over-the-counter drugs

VOCAB:

Controlled Substance

Narcotic

Drug

Poison

Toxicity

Toxin

Presumptive

Toxicology

Chronic Exposure

Stimulant

Anabolic Steroid

Depressant

Curriculum: Dover Area School District
 Course: CSI/Forensic Science
 TOPIC: Questioned Documents and Forgeries

6 days

Know:	Understand:	Do:
<p>Handwriting samples show unique characteristics known as class characteristics and individual characteristics that help investigators to use samples in a court of law.</p> <p>Handwriting experts examine twelve characteristics:</p> <ul style="list-style-type: none"> - Line quality - Word and letter spacing - Height, width and letter size ratios - Pen lifts and separations - Connecting strokes - Beginning and end strokes - Unusual letter formation - Shading or pen pressure - Slant - Baseline habits - Flourishes or embellishments - Placement of diacritics <p>There are three types of forgery: blind, simulated and traced.</p> <p>Forgeries include erasures of words or letters which are evident by examining the paper's surface. This is known as obliteration and they can either be physical or chemical.</p> <p>Inks from suspected forgeries can be analyzed using the method of chromatography.</p> <p>Counterfeiting is one of the</p>	<p>Handwriting becomes personalized almost as soon as students begin learning it.</p> <p>Questioned documents and other collected documents can be analyzed for handwriting comparisons to determine if the author of each is the same.</p> <p>Inks (printer, pen, and photocopier) can be compared to determine if they share a common source.</p> <p>Questioned documents may be analyzed for alterations, obliterations, erasures, or variations in pen inks.</p>	<p>Define questioned document, explain some of the techniques document examiners use to uncover alterations, erasures, obliterations, and variations in pen inks.</p> <p>Identify what common characteristics are associated with handwriting and list important guidelines for collecting known writings for comparison to a questioned document.</p> <p>Describe Anti-counterfeiting features on US currency.</p>

oldest crimes in the world and has been decreasing due to changes in the materials used to create our currency.

VOCAB:

Questioned Document

Transfer Medium

Control Sample

Class Characteristics

Aspects of Comparison

Alterations

Erasures

**Significant
Difference/Similarity**

Obliterations

Exemplar

Curriculum: Dover Area School District

Course: CSI/Forensic Science

TOPIC: Death

7 days

Know:

Understand:

Do:

<p>Anthropology and pathology help investigators determine cause of death, manner of death, gender of the victim, age, and height of the victim. This allows for a possible identification of the victim given the information.</p> <p>Skeletal remains can be used to determine gender, age range, height and race</p> <p>Time of death can be predicted using Rigor Mortis, Algor mortis, livor mortis and stages of decomposition.</p> <p>Autopsies are post-mortem analyses designed to discover cause, manner, and time of death.</p> <p>The study of Forensic Entomology can be used to determined time and manner of death.</p> <p>VOCAB:</p> <p style="text-align: center;">Algor Mortis</p> <p style="text-align: center;">Autolysis</p> <p style="text-align: center;">Cause of Death</p> <p style="text-align: center;">Death</p> <p style="text-align: center;">Decomposition</p>	<p>Forensic anthropologists identify and examine human skeletal remains to gain insight into a crime.</p> <p>Bones reveal key information about the age, race, sex, health, and lifestyle of the person.</p> <p>There are several definitions of death, including the cessation of the heartbeat and brain function.</p> <p>An autopsy is performed if a death is suspicious or unexplained.</p> <p>A forensic entomologist studies the development of insect larvae in a body to estimate the time of death.</p>	<p>Describe how bone is formed.</p> <p>Distinguish between male and female skeletal remains based on skull, jaw, brow ridge, pelvis and femur.</p> <p>Describe how bones contain a record of disease and injury.</p> <p>Describe how age determination may be based upon an analysis of bone.</p> <p>Explain human facial structure differences based upon race.</p> <p>Describe the role of mitochondrial DNA in bone identification</p> <p>Distinguish between four manners of death: natural, accidental, suicidal, homicidal.</p> <p>Distinguish between cause, manner, and mechanisms of death.</p> <p>Explain how the development of rigor, algor and livor mortis occur.</p> <p>Employ evidence of rigor, algor and livor mortis to calculate the approximate time of death.</p>
--	---	---

<p>Forensic Entomology</p> <p>Instar</p> <p>Larva</p> <p>Livor Mortis</p> <p>Manner of Death</p> <p>Mechanism of Death</p> <p>Pupa</p> <p>Putrefaction</p> <p>Rigor Mortis</p>		<p>Describe the stages of decomposition in a corpse.</p> <p>Employ autopsy report regarding stomach contents to estimate time of death.</p> <p>Explain how time of death estimates may be linked to insect evidence.</p> <p>Provide an example of the succession of different types of insects that are found on a body as it decomposes.</p> <p>Estimate time of death given insect evidence, rigor, algor and livor mortis data.</p> <p>Describe how various environmental factors may influence the estimated time of death.</p>
---	--	---

Curriculum: Dover Area School District
 Course: CSI/Forensic Science
 TOPIC: Ballistics and Impression Evidence

6 days

Know:	Understand:	Do:
<p>Trace evidence is any physical evidence that is too small to make physical matches but large enough to be analyzed.</p> <p>There are several types of firearms legal in our society such as handguns, rifles, shotguns and BB guns.</p> <p>Bullets are identified by its caliber (diameter). The weight, dimensions, shape and type of bullet are considered class evidence.</p> <p>The lands and grooves made on bullets that are rifled are known as class characteristics and can be used to identify weapons.</p> <p>Tools can be any object and is defined by the purpose for which the object is used.</p> <p>Tool marks are created on a surface softer than the tool.</p> <p>Both class and individual characteristics can be used to identify a tool used in a crime.</p> <p>Tool marks are taken into the lab for examination or cast replicas are created.</p> <p>Shoeprints/footprints can provide information about a crime scene such as direction</p>	<p>Many objects leave impressions that can be used as trace evidence</p> <p>Different types of firearms have unique characteristics.</p> <p>Spent cartridges and bullets can be matched with specific firearms used in crimes.</p> <p>There are procedures that can determine if an individual fired a weapon.</p>	<p>Distinguish between latent, patent, and plastic impressions.</p> <p>Explain how various types of impressions can be used as trace evidence.</p> <p>Use track width and wheelbase information to identify a motor vehicle.</p> <p>Discuss the significance of tool mark impressions in criminal investigations.</p> <p>Describe three major types of tool mark impressions.</p> <p>Describe variations in tool surface characteristics that are used to identify individual tools.</p> <p>Match tool marks with the instrument used to create them.</p> <p>Describe how tool mark evidence is collected, preserved and documented.</p> <p>Describe rifling on a gun barrel and explain how it marks a bullet.</p>

of approach and departure, point of entry, exit and the sequence of events and personal traits.

Shoeprints can be matched to a shoe using class evidence.

Tire treads are similar to shoeprints in that they can provide both class and individual characteristics used in identification.

VOCAB:

Ballistics

Barrel

Bullet

Caliber

Cartridge

Firearm

Fully Automatic

Gunshot Residue (GSR)

Lands and Grooves

Muzzle

Pistol

Revolver

Rifle

Semi-Automatic

Shell-casing

CSI/Forensic Science Pacing Guide

Course: CSI/Forensic Science

Course Unit (Topic Periods)	Length of Instruction (Class)
1. Logic, Reasoning, and Observation	6 days
2. Intro to Forensic Science	9 days
3. Crime Scene Investigation	10 days
4. Hair Analysis	7 days
5. Fiber Analysis	7 days
6. Fingerprint Analysis	8 days
7. Blood Spatter and Serology	8 days
8. DNA Fingerprinting	8 days
9. Toxicology	8 days
10. Questioned Documents and Forgeries	6 days
11. Death	7 days
12. Ballistics	6 days

Total Days: 90 days