



Medical Forensics

This course is designed to create an awareness of the branch of health science relating to medical forensics. Focus is on introductory skills and assessment in order to develop the ability to identify, analyze, and process logically using deductive reasoning and problem solving. Medical forensics involves many aspects of health science instruction including laboratory skills and safety, microscopy, toxicology, measurement, physical evidence identification, pathology, anthropology, entomology, psychology, blood spatter analysis, and career exploration.

Grade Level: 11-12

Full Year

Prerequisite: Biology

State Certification Skills Test #730

Introduction to Medical Forensics - Students will explore the fundamental aspects of Medical Forensics

Standard 1 Detail the history and development of medical forensics.

Standard 2 Discuss the organization of the crime laboratory and detail the functions it serves.

Standard 3 Describe the importance of physical evidence and observation.

Fundamental Laboratory Skills - Students will explore essential laboratory safety skills and fundamental skills related to microscopy and measurement.

Standard 1 Demonstrate appropriate use of personal protective devices.

Standard 2 Exhibit appropriate behavior in the lab.

Standard 3 Use laboratory equipment correctly and safely.

Standard 4 Follow laboratory procedures.

Standard 5 Comply with policies and requirements for maintaining a lab manual.

Standard 6 Demonstrate proper handling of chemicals.

Performance Skills

Demonstrate safe removal of gloves.

Demonstrate how to properly use lab coats, gloves, and safety glasses.

Maintain an accurate lab manual document the steps of the scientific method.





Medical Forensics Investigation - Students will describe techniques used to process a homicide crime scene and preserve the evidentiary value of the scene.

Standard 1 Describe how various medical forensics professionals process a crime scene.

Standard 2 Demonstrate or describe proper procedures of evidence collection.

Standard 3 Identify how a crime scene and evidence may be compromised.

Performance Skills

Collect and properly label evidence.

Evidence - Students will identify and analyze trace evidence, emphasizing hair and fiber.

Standard 1 Examine trace evidence using a microscope, chromatography, and other techniques.

Standard 2 Examine and analyze the forensic aspects of hair.

Standard 3 Examine and analyze the forensic aspects of fibers by using physical (microscopic) and chemical (burn, acid, base, acetone) testing methods.

Fingerprint Identification - Students will explore fingerprint identification.

Standard 1 Describe fingerprint classification.

Standard 2 Identify and classify fingerprint and ridge patterns.

Standard 3 Compare and contrast latent, plastic, and visible fingerprints.

Performance Skills

Develop a latent fingerprint and identify 10 ridge characteristics.

Serology - Students will investigate the characteristics of blood, blood testing, and bloodstain analysis.

Standard 1 Identify the components and chemical properties of blood.

Standard 2 Determine genetic probabilities using blood types.

Standard 3 Examine and analyze blood spatter.

Standard 4 Describe proper procedures for blood stain evidence collection, presumptive testing (Kastle-Meyer), and preservation.

Performance Skills

Classify blood spatter by velocity.





Mortality - Students will investigate various aspects of death.

Standard 1 Describe correct anatomical position and the role it plays in death investigation.

Standard 2 Locate the body cavities and body regions and identify the major organs within each.

Standard 3 Identify the following organs and their location.

Standard 4 Compare and contrast the manner and method of death.

Standard 5 Identify the steps of an autopsy procedure and discuss the role an autopsy report may play in a death investigation

Standard 6 Identify the stages of decomposition to determine approximate time of death.

Performance Skills

Identify steps of an autopsy procedure by animal dissection. Use external and internal examination methods and a y-shaped incision technique.

Forensic Psychology - Students will explore aspects of the criminal mind.

Standard 1 Locate and identify the major organs of the nervous system.

Standard 2 Identify and describe offender profiling procedures.

Standard 3 Identify psychological testing processes and procedures and other factors that affect the criminal mind.

Standard 4 Compare and contrast neurobiological brain abnormalities and mental conditions related to abnormal psychology and the criminal brain and technical instrumentation used to diagnose these abnormalities.

Standard 5 Explore the psychological aspects of a serial killers and mass murderers.

Forensic Anthropology - Students will explore characteristics of physical evidence and remains.

Standard 1 Identify the basic bones of the skeleton and distinguish the differences between long and short bones.

Standard 2 Use skeletal remains to determine the physical characteristics of an individual.

Standard 3 Identify injuries, bone diseases, and possible causes/methods of death using bone characteristics.

Standard 4 Describe how teeth are used in forensic identification.

Performance Skills

Identify the sex of an individual based on skeletal markers.

Match a bite mark from a victim to the perpetrator.





Toxicology - Students will develop an understanding of the adverse effects of drugs and be acquainted with the laboratory investigation of the most common poisonings.

Standard 1 Identify the five schedules of drug types and classify according to the effects that they have on the body.

Standard 2 Describe how individual body systems are affected by drug intake

Standard 3 Identify signs and symptoms of an overdose.

Standard 4 Describe current field and laboratory procedures used for measuring the concentration of alcohol in the bloodstream.

Standard 5 Discuss other chemical and biological agents that have high mortality rates with exposure.

Standard 6 Compare and contrast methods used to collect and package drug evidence.

DNA Evidence - Students will investigate the importance of DNA evidence.

Standard 1 Identify the structure and function of a DNA molecule.

Standard 2 Describe advancements in technology used to obtain a DNA fingerprint.

