FORENSIC SCIENCE LABS

Thursdays, September 12-December 12 (no class October 17 or November 28; 12 weeks)
12:00pm-1:30pm
Ages 14+

In this course, students use scientific methods (biology, chemistry, and physics) to answer questions related to crimes and law enforcement investigations. Students learn proper collection, preservation and analysis of various types of evidence. All lab costs are included in registration fee. Course enrollment is limited to 12 students.

Instructor: Tonya Shearer, PhD
Location: STEM Lab (suite 21)
Course fee: $275 OR $25/lab
10% off early registration discount through July 31
10% off sibling discount available beginning August 1

LAB SCHEDULE

Forensic Science and Evidence Gathering – Thursday, September 12
Students are introduced to the science of forensics, learn about proper data gathering, evidence collection, and chain of custody in crime scene investigations, and evaluate the testimonial evidence of witnesses.

Fingerprint Analysis – Thursday, September 19
This week we study the biology of fingerprints and history of fingerprint analysis, learn how fingerprint evidence is left at a scene, practice powder and chemical methods of recovering fingerprint evidence, and analyze fingerprint data.

Blood Analysis – Thursday, September 26
We study blood this week. After reviewing the components of our blood and viscosity of liquids, we learn the chemistry of detecting blood at a crime scene, and create life-like fake blood to study the physics of spatter.

Blood Typing – Thursday, October 3
Continuing with blood evidence, this week we study blood types and how blood is characterized, learn how our immune response can assist with eliminating potential suspects, conduct a blood type analysis on synthetic blood, and solve a mystery using blood evidence.

DNA Analysis – Thursday, October 10
Students review the structure and function of DNA, learn how scientists collect and extract DNA, and investigate different DNA technologies used to analyze DNA (sequences, fragments, STRs, mtDNA).

Hair and Fiber Analysis – Thursday, October 24
In this lab, we learn to differentiate types of hair and fiber that could be trace evidence left at a crime scene. Students compare human and animal hair types, as well as natural and synthetic fibers using proper microscopic methods.

Forensic Entomology – Thursday, October 31
This week we study how insect life cycles (and other ecological information) can assist in determining the location and chronology of a crime, investigate stages of decomposition and learn how environment influences the decomposition process.

Handwriting Analysis – Thursday, November 7
Students study forgery and handwriting analysis as they look for nuances in handwriting style, match suspect writing with evidence, reveal writing impressions and, observe difficulties in foraging a signature.

Weapon Identification – Thursday, November 14
Students use ballistics gel to test markings of several potential weapons to determine the weapon used in the crime, and measure the angle of entry to gain insight on the size of the suspect and manner in which an assault took place.

Powder Analysis – Thursday, November 21
We use chemical analysis and observation to identify unknown white powders to model the analysis of poisons or drugs that may be found at a crime scene.

Impressions and Gait Analysis – Thursday, December 5
We study footprints, tire marks, and bite marks to determine how this evidence can be used to link a suspect to a crime scene. In addition, we analyze footprints and walking patterns to determine the height of the person who made them.

Crime Scene Investigation – Thursday, December 12
Using the skills and techniques they learned this semester, students work together to solve a crime and present their evidence. Once the case is solved, students work together to create their own crime scene scenario.