

Forensic Science

Course Syllabus

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Overview and Introduction

What is Forensic Science?
CSI Effect
History of Forensic Science
The Scientists
Parts of the crime lab and its purpose
Different types of evidence
Expert Testimony
What qualifies someone to be an expert witness?

The Crime Scene

What is the crime scene?
Securing the crime scene
Collection of evidence
Diagramming the crime scene (final and rough sketches)
Physical Evidence

Photography of Crime Scenes

Know your Camera
Rules for proper photos
Photo Scales
Lighting
Legal

Death Investigation

What is Cause and Manner of death?
What is a forensic pathologist?
Medical terms
How is an autopsy done?
Medicolegal Investigation
What does an MLI do?
Why is their role so important?
How are they similar to crime scene investigators?

Fingerprints

Biology of the skin
Chemical composition of prints
How fingerprints are formed
How to identify different types of fingerprints

Deltas, Loops and Arches
Definition of latent and visible prints
Classification of prints
How to fingerprints a suspect
How to lift fingerprints using different types of media
How to lift fingerprints from different types of surfaces

Fire Investigation / Arson

Penal law
Origin and cause
Motives
Investigation of fire crime scenes
Chemistry of fire
Fire tetrahedron
Terminology
Burn patterns and accelerants
Chemical analysis of accelerants

Firearms Investigation / Ballistics

Parts of the cartridge
Grooves and lands-what they tell us
Measuring the diameter of a barrel
How do we “match bullets” to a crime scene
The physics of a flying bullet

DNA

What is DNA
How is it used in a criminal investigation?
Replication of DNA
DNA Typing
CODIS
How is it used to identify victims of disasters such as WTC?

September 11/Forensic Odontology

World Trade Center Investigation
What actually happened?
How victims were identified;
The World Trade Center Disaster
American Airlines Flight 587

Document Analysis

Document comparisons
Proper collection of samples
Techniques used in comparison
What to look for in suspect documents
Writing profiles

Hair and Fiber Analysis

How do hair and fiber help us in an investigation?
Location and collection of hair evidence.
Lack of evidentiary value

Sexual Assault Investigation

Rape evidence
Collection/Analysis of evidence
Penal Law

Computer Forensics

How to analyze a computer
Why evidence can be found on HD
“Mad minute”

Footwear /tire marks

Identification of footwear
2d vs 3d
Class vs individual characteristics
Dental stone cast
Oblique lighting

Entomology

How do insects help in an investigation?
How do insects help determine time of death?
Collection and analysis of insects.
Decomposition study

Toxicology

What is the role of the toxicologist?
How are drugs/alcohol located and tested?
Common drugs

Accident Investigation/Reconstruction

How does an investigator figure out what happened?
How fast was the vehicle going?
Who was at fault?

Case studies

Jon Benet Ramsey
Casey Anthony
Megan Kanka
Current Events

Mid Term**Class Final Exam****Mock Crime Scene Final****Research Project****Guest Speakers**