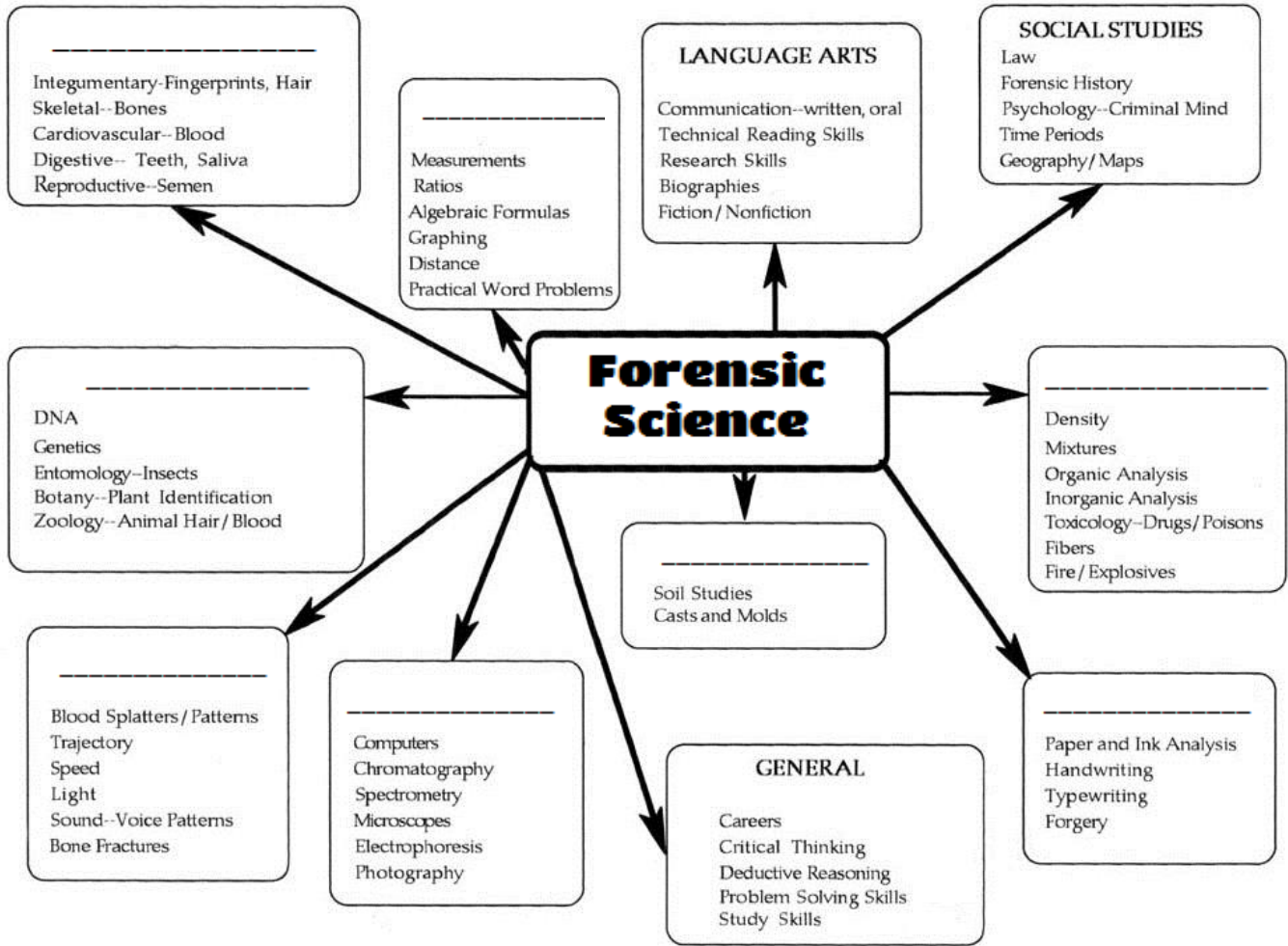


Ch. 1 Notes – Intro to Forensic Science

- A. Forensic Science- also called Forensics or _____
- Definition: The study and _____ of _____ to matters of the _____.
 - Application comes from many areas, including:



- B. Forensic Scientist
- Job Description
 - _____ and _____ crime scenes
 - Collect and preserve _____
 - Analyze and compare evidence in a _____
 - Reconstruction of data (form the “best theory” of events in the case)
 - Provide _____
 - Skills Needed
 - Good observation skills – use the _____
 - Analytical skills – ability to identify the problem, organize info, draw _____
 - _____ reasoning – using logical steps to draw a conclusion based on facts or evidence



C. Branches of Forensic Science

- a. Forensic _____ - medical doctors, medical examiners, and pathologists study the medical history, perform an _____, and collect medical and trace evidence from the body for further analysis. Help determine _____ and circumstances of _____ (may be for murder investigations, but also help with insurance claims, malpractice claims, etc.)
- b. Forensic _____ - dentists who specialize in identification perform bite mark analysis and dental identification when there is no other way for body _____
- c. Forensic _____ - medical examiners and the Coroner's office determine toxic substances in the body; includes _____ and _____
- d. Forensic _____ - identification of persons or personal characteristics (sex, age, race, stature) based on body _____
- e. Forensic _____ - identification of blood and other body fluids (semen, vaginal fluid, saliva)
- f. Forensic _____ - uses insects to determine time of death and location of a corpse
- g. Forensic Psychiatry and _____ - evaluate offenders and profile criminal cases
- h. Forensic Engineering- investigate transportation _____, materials failure cases, determine cause of building/structure _____, etc.
- i. Forensic Computer Science- investigate criminal use of _____ and electronic records

D. Services of the Crime Laboratory

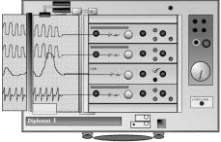
- a. Different crime laboratories have a variety of services due to local laws, the capabilities of the agency, and budget limitations. A "full-service" crime laboratory would include the following:
 - i. Physical Science Unit – Incorporates the principles of chemistry, physics, and geology to identify and compare _____
 - 1. May be further divided into Drug Identification, Soil & Mineral Analysis, and Trace Evidence sections.
 - 2. Trace and Transfer Evidence- identification of _____ of materials found at a scene or on a victim (blood, food, hair, paper, fibers, cosmetics, soil, gunshot residue, etc.).
 - ii. Biology Unit – Applies the knowledge of biological sciences in order to investigate _____ samples, _____, botanical samples, _____, and fiber samples. Also includes DNA profiling.
 - iii. Firearms Unit – Investigates discharged _____, cartridge cases, shotgun shells, and ammunition. Also includes comparison of _____ marks, _____ treads, and _____ prints.
 - 1. _____ - A specific type of physical pattern identification; matching projectiles and casings to individual firearms or _____.
 - iv. Document Examination Unit – Provides _____ and other reproduction processes; _____ and paper analysis; _____ and authenticity. Also analyzes indentations, obliterations, erasures, and burned or charred documents.
 - v. Photography Unit – Responsible for _____ and examining physical evidence. May use special techniques (_____ imaging, infrared, _____, _____). Also responsible for photographic display in _____ presentations.





- vi. Toxicology Unit – Examines body fluids (_____, _____) and organs for the presence of drugs and poisons. Also responsible for training _____ operators and for maintenance of the instruments.
- vii. Fingerprint Unit – Processes and examines crime scene and evidence for _____ fingerprints.

1. Latent fingerprints are marks left at a crime scene not immediately _____ to the naked eye.



- viii. Polygraph Unit – Conducts polygraph (_____) tests; administered by people trained in investigation and interrogation.

- ix. Voiceprint Analysis Unit – Attempts to tie a recorded voice to a particular suspect. Use an instrument called a _____ to make a visual graphic display called a _____.

EVIDENCE	
Agency _____	Collected By _____
Item # _____	Case # _____
Date _____	Time _____
Description _____	
Location _____	
Remarks _____	
CHAIN OF CUSTODY	
Received from _____	By _____
Date _____	Time _____
Received from _____	By _____
Date _____	Time _____
Received from _____	By _____
Date _____	Time _____

- x. Evidence-Collection Unit – Dispatches specially trained personnel to the crime scene to collect and _____ physical evidence. Must follow specific procedures to maintain _____ of _____.

1. Chain of Custody refers to the document or paper trail showing the _____, custody, control, _____, analysis, and disposition of physical and electronic evidence.

E. Four Major Crime Labs have been created to assist in cases that extend beyond state and local jurisdictions. They offer their expertise to any local agency that requests it.



- a. _____ (Federal Bureau of Investigation)- has _____ crime lab in the world
- b. _____ (Drug Enforcement Administration)(Department of Justice)- analyzes drugs seized in _____ cases
- c. _____ (Bureau of Alcohol, Tobacco, and Firearms)(Department of Treasury)- analyzes alcoholic beverages, documents relating to _____ laws, examines weapons, _____, etc.
- d. **US _____ inspection Service**- handles criminal investigations relating to postal service

F. Forensics in Ohio

- a. The **Bureau of Criminal Investigation**, known as _____, is the state’s official crime lab.
- b. Their headquarters are in _____, Ohio but they have offices in Athens, Bowling Green, Cambridge, _____, and Youngstown.
- c. They offer special agents who are on call 24/7 to offer investigative assistance at crime scenes, scientists and forensic specialists who process evidence, and criminal intelligence analysts and identification specialists who help _____ law enforcement solve cases.



G. History of Forensic Science and Important Individuals

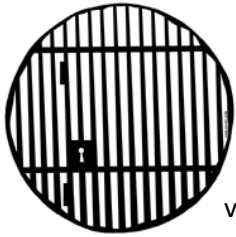
- a. **13th Century China**: The _____ case ever recorded using forensic science. When someone was _____, all of the _____ in the village were collected. _____ were attracted to the traces of blood and landed on only one of the knives, causing the suspect to _____.
- b. **Mathieu Orfila** (1814): Considered the “Father of Forensic _____”; chemist who published first scientific paper on the detection of _____ and their effects on animals.
- c. **William Herschel** (1856): Used _____ on documents to identify workers in India.



- d. **Alphonse Bertillon** (1879): “Father of _____”.
Developed Anthropometry which uses _____ to distinguish individuals.
- e. **Henry Fauld** (1880): Uses fingerprints to eliminate an _____ burglary suspect.
- f. **Sir Arthur Conan Doyle** (1887): Published his first _____ story;
Considered the first “CSI”, featured in four novels and 56 short stories, popularized scientific crime-detection methods.
- g. **Francis Galton** (1892): Published *Finger Prints*. Conducted the first definitive study of fingerprints and their _____ . Gave proof of their _____ .
- h. **Hans Gross** (1893): Published *Criminal Investigation*. Wrote the first paper describing the application of _____ to the field of criminal investigation.
- i. **Karl Landsteiner** (1901): Discovered the _____ groups, later received Nobel Prize.
- j. **Edmond Locard** (1910): Incorporated Gross’ principles within a workable _____ ;
became the founder and director of the Institute of Criminalistics at the University of Lyons, France.
- k. **Albert S. Osborn** (1910): Published *Questioned Documents*. Developed the fundamental principles of _____ .
- l. **Leone Lattes** (1915): Developed a method for determining blood type from _____ blood.
- m. **August Vollmer** (1923): Established the _____ Crime Lab in United States, located in Los Angeles.
- n. **Calvin Goddard** (1925): Developed a _____ microscope; first used to compare _____ to see if fired from the same weapon.

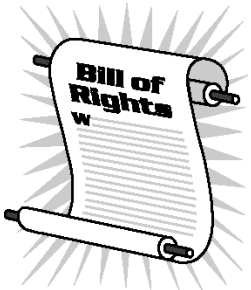
H. Involvement of Forensics in Criminal Cases

- a. Different types of criminal cases receive different levels of forensic treatment.
 - i. Forensics are used more in crimes against _____ rather than _____
(ex. Murder and rape)
- b. There are also differences in the importance of physical evidence analysis with different types of cases
 - i. Ex. Important in _____ possession; drugs must be identified
- c. Certain types of physical evidence are associated with particular crimes
 - i. Ex. Burglary- _____ evidence
- d. There are a number of different kinds of law in the U.S. Criminal Justice System:
 - i. **Statutory Law**: “Law on the _____”; these are legislative acts declaring, commanding, or prohibiting something. They have been _____ by a governmental body or agency (such as Congress) and are based on the _____ .
 - ii. **Common Law or Case Law**: Laws made up of judicial opinions and _____ set in appellate courts.
 - iii. **Civil Law**: Often referred to as _____ law; deals with relationships between individuals involving matters such as _____, contracts, marriage/ _____, negligence, and other civil concerns. Violations of civil law are usually punishable by _____ or transfer of property.
 - iv. **Criminal Law**: Often referred to as _____ law; deals with regulation and enforcement of rights. Offenses against an individual are usually offensive to _____ ; the _____ becomes the plaintiff in court. (ex. Miranda vs. Arizona)
 - 1. _____ - minor crime such as theft, minor assault and battery, or possession of small amount of illegal drugs.
 - 2. _____ - major crime such as murder, rape, armed robbery, serious assaults, dealing of illegal drugs, fraud, auto theft, or forgery.



3. In criminal cases, the prosecution must prove guilt “beyond a _____” to convict the suspect.
 4. Violations of criminal law are punishable by fines, community _____, _____, incarceration, life in prison, or capital punishment (death).
 - v. Equity Law: Remedial or preventative; includes injunctions and _____ orders.
 - vi. Administrative Law: Laws established by agencies such as the _____, _____ Security Administration, or branches of the _____.
- e. Forensic scientists may examine evidence concerning the breaking of any and all types of laws listed above. However, all collectors and handlers of evidence must be aware of the rights guaranteed in the _____ of _____ by the US Constitution, so that individual rights are not violated.

Some of these rights include:



- Protection from _____ search and seizure
- The right not to be arrested without _____
- The right to be presumed innocent until _____ guilty
- The right against self-_____
- The right to a fair and _____ jury trial that will be free from cruel and unusual _____ and _____ bail and fines

I. Steps in Pursuing Justice

a. These can be different depending on jurisdictions (federal, state, local), state procedures, type of crime, prior history, etc. However the general generic procedure may go as follows:

- i. Crime is _____
- ii. Crime is _____ (a suspect may be identified)
- iii. Police _____ and information is collected
- iv. Crime Scene is documented and searched for _____
- v. All information assembled into a report for a _____
- vi. Investigation ensues
- vii. If there is enough evidence to establish _____, an arrest _____ is issued
 1. In cases of _____ danger, officers do not wait for a warrant.
- viii. After arrest, suspect is _____, fingerprinted, photographed, and informed of _____



Rights

- Before a law enforcement officer may question a suspect, they must inform the detainee of their rights and make sure they _____ them.



MIRANDA WARNING

1. YOU HAVE THE RIGHT TO REMAIN SILENT.
2. ANYTHING YOU SAY CAN AND WILL BE USED AGAINST YOU IN A COURT OF LAW.
3. YOU HAVE THE RIGHT TO TALK TO A LAWYER AND HAVE HIM PRESENT WITH YOU WHILE YOU ARE BEING QUESTIONED.
4. IF YOU CANNOT AFFORD TO HIRE A LAWYER, ONE WILL BE APPOINTED TO REPRESENT YOU BEFORE ANY QUESTIONING IF YOU WISH.
5. YOU CAN DECIDE AT ANY TIME TO EXERCISE THESE RIGHTS AND NOT ANSWER ANY QUESTIONS OR MAKE ANY STATEMENTS.

WAIVER

DO YOU UNDERSTAND EACH OF THESE RIGHTS I HAVE EXPLAINED TO YOU? HAVING THESE RIGHTS IN MIND, DO YOU WISH TO TALK TO US NOW?

- ix. Suspect is brought before magistrate/judge, or commissioner within _____ hours for arraignment



1. During arraignment the defendant is brought before court to hear charges and enter a _____. May enter a plea of:
 - a. Guilty
 - b. Not guilty
 - c. Not guilty by reason of _____ - meaning that at the time of the crime, the defendant was 'unable to appreciate the nature and quality or the _____ of the acts'
 - d. _____ - if he or she has already been tried for the same crime in the same court
 - e. No _____ - neither admits or denies the crime, but accepts punishment as though he/she were _____
- x. Preliminary or evidentiary hearing, grand jury, or plea _____
 1. Preliminary or evidentiary hearing: a hearing before a judge to determine whether a person charged with a crime should be held for _____.
 2. Grand jury: A grand jury is a group of people that are selected and sworn in by a court, just like jurors that are chosen to serve on a trial jury. A prosecutor will work with a grand jury to decide whether to bring _____, or an indictment, against a potential defendant.
 - a. If the suspect is indicted, a trial _____ is set.
 - b. Indict means to _____ a person of a crime
 3. Plea bargaining: an agreement in which a defendant _____ to a _____ charge and the prosecutor in return drops more serious charges to avoid the _____ and _____ of trial