BIOL 104 Forensic Biology

Exam I Review

**Chapter 1 Introduction**

1. What is forensic science?
2. What is the difference between a criminalist and a criminologist?
3. What do forensic scientists do?
4. Who was Edmond Locard? What is Locard’s exchange principle?
5. What factors have contributed to the growth in crime labs?
6. Know the primary functions of the five crime units: physical science, biology, firearms, document, and photographic.
7. What are the functions of the toxicology and forensic pathology units?
8. What are rigor mortis, livor mortis and algor mortis?
9. Know what other forensic services do including forensic anthropology, forensic entomology, forensic psychiatry, forensic odontology, forensic engineering, and cybertechnology.
10. What is an expert witness?
11. What is the *Frye* Standard?
12. How did *Daubert* v. *Merrell Dow Pharmaceutical, Inc.* modify the *Frye* Standard? What are the *Daubert* Criteria?

**Lab 1 Practice in making laboratory measurements (Appendix, Experiment 1)**

1. Be able to convert within and to the metric system.
2. Be able to calculate the density of rectangular, cylindrical and irregular objects.

**Chapter 2 The Crime Scene**

1. What is physical evidence?
2. Why does forensic science begin at the crime scene?
3. What is Locard’s principle?
4. What are the first steps taken at a crime scene?
5. What steps need to be taken in order to properly secure a crime scene?
6. How are crime scenes recorded?
7. What types of pictures need to be taken at a crime scene?
8. What needs to be recorded on a rough sketch? How does a rough sketch differ from a finished sketch?
9. What types of notes need to be made at a crime scene?
10. Know the difference between types of search patterns: strip or line search, grid search, spiral search, wheel/ray search, quadrant or zone search.
11. What is trace evidence?
12. What is proper packaging for biological evidence?
13. What information should be included on a proper evidence label?
14. What is chain of custody and why must it be maintained?
15. What allowances have been made for warrantless searches?
16. Know the *Mincey* v. *Arizona* and *Michigan v. Tyler* cases.
17. What items should be collected and sent from the medical examiner to the forensic laboratory?

**Lab 2 Locard’s Principle: Recording and collection of evidence**

1. What is Locard’s exchange principle?
2. How did Locard’s exchange principle influence your collection and handling of the evidence?
3. Why is it important to maintain the chain of custody for evidence?

**Chapter 3 Physical Evidence**

1. What is the purpose of identification of physical evidence and how is it accomplished?
2. What are reference standards/samples?
3. What is the purpose of comparison of physical evidence and how is it accomplished?
4. What are individual characteristics? What are class characteristics?
5. Be able to apply the product rule.
6. What is the challenge of using probability values?
7. Know the types of information stored in the following databases: IAFIS, CODIS and IBIS.
8. How can physical evidence be used to solve crimes?
9. What is forensic pathology?
10. What are rigor mortis, livor mortis and algor mortis?
11. What information can be determined from skeletal remains?
12. What do forensic anthropologists do?

**Lab 3 Cause of Death Autopsy I**

1. When is an autopsy conducted?
2. Be able to appropriately use the following directional terms: caudal, cranial, dorsal, ventral, superior, inferior, anterior, posterior, medial, lateral, proximal and distal.
3. Know the terms cyanosis, jaundice, ascites and edema.
4. What are rigor mortis, livor mortis and algor mortis?
5. Know the terms contusion, abrasion, laceration, puncture and incision.

**Supplemental Information- Human Remains**

1. What is an autopsy?
2. Know when to use one of the five categories of death: natural, accidental, homicidal, suicidal and unknown.
3. What warrants an autopsy?
4. What is involved in an external examination?
5. What are rigor mortis, livor mortis, algor mortis and pallor mortis?
6. What is involved in an internal examination?
7. Know the different autopsy methods: Letulle, Ghon, Virchow and Rokitansky.
8. What is the difference between qualitative and quantitative analysis?
9. What types of samples can be collected for postmortem forensic toxicology?
10. What is a hematoma and what can it reveal about a deceased individual?
11. Where in the body are drugs metabolized?
12. What is vitreous humor and how is it useful to forensic toxicologists?
13. How should specimens be properly stored and handled?
14. What are some pitfalls in postmortem forensic toxicology?

**Lab 4 Cause of Death Autopsy II**

1. Be able to identify the locations of organs in the fetal pig: heart, lungs (thoracic cavity), liver, gallbladder, kidneys, bladder, spleen, pancreas, stomach, small intestine, large intestine (abdominal cavity).