

Format: 22 multiple choice questions and 5 open ended questions

Concepts to Review:

- Blood Biology
 - Be able to explain why blood evidence is useful in solving crimes.
 - Be able to describe the components of blood and explain how each component is important for survival: *red blood cells*, *white blood cells*, *platelets*, and *blood plasma*.
 - Be able to explain how each component of blood is useful to a forensic biologist.

- Blood Type Analysis
 - Be able to explain the roles of *antigens* and *antibodies* in the immune system.
 - Know the eight human blood types: A+, A–, B+, B–, AB+, AB–, O+, and O–.
 - Understand the roles of A and B antigens in determining a person’s blood type.
 - Understand the role of the *Rh factor* antigen in determining a person’s blood type.
 - Understand how a person’s blood antigens determine which blood antibodies are produced.
 - Be able to explain how forensic biologists determine the blood type from a blood sample.
 - Understand why blood type O– is the *universal donor* and blood type AB+ is the *universal recipient*.
 - Be able to determine whether a particular donor can safely give blood to a particular recipient based on their blood types.
 - Understand the terms *gene* and *allele*, including how they relate to a person’s blood type.
 - Understand the role of a *Punnett square* in genetics.
 - Be able to use a Punnett square to make predictions about the inheritance of blood types in a family.
 - Be able to describe some *limitations* of blood type analysis.

- Blood Spatter Analysis
 - Be able to explain how blood spatter is useful in solving crimes.
 - Be able to explain how blood can be detected at a crime scene, including the role of *luminol*.
 - Understand the terms *parent drop*, *spines*, and *satellite spatter*.
 - Be able to explain how the height of blood spatter affects the droplet size.
 - Be able to explain how the direction of movement affects the shape of a blood droplet.
 - Be able to explain how the speed of movement affects the blood spatter pattern.
 - Be able to explain how the angle of impact affects the droplet shape.
 - Be able to describe some *limitations* of blood spatter analysis.

- Lab Skills
 - Be able to use *deductive reasoning* when trying to investigate a crime.
 - Be able to interpret the results of a blood type test.
 - Be able to make inferences about a crime based on a blood spatter pattern.

Resources:

You may use your laboratory notebook during the exam, but you may NOT consult any other notes or handouts (your regular class notebook and anything that was not added to your laboratory notebook during our lab work is NOT ALLOWED).