

# Forensic Science

<b>Dress Code</b>	Official HOSA uniform or business professional attire
<b>SLC Orientation</b>	Event explained to the competitors and individual timecards handed out. Students will return to the event room at least 5 minutes before their allotted time.
<b>Team Numbers</b>	Teams will consist of 2 people
<b>Round # 1 Online Test</b>	Competitors will take an online test during the testing window. Combined team scores will be used to qualify into Round 2 of the competition. Advisors will be informed of which competitors have moved on from Round 1 to qualify to participate in Round 2 at SLC.
<b>Round # 2</b>	<ul style="list-style-type: none"> <li>- Competitors will have a secret scenario to solve when it is their turn to compete.</li> <li>- Students should not share the secret scenario when they leave the event as it is an automatic disqualification.</li> <li>- Teams will have 6 minutes to view the crime scene and 30 minutes to write their conclusions.</li> </ul>
<b>Scoring</b>	Scores from Round One will be combined with Round Two rubric scores for a combined final score.

## Event Summary

Forensic Science allows HOSA members to work as a team to apply their knowledge and skills in creating a solution to a forensic science-related problem. This competitive event consists of 2 rounds, and each team consists of 2 people. Round One is a written test that evaluates the team's understanding of forensic science. The test score from Round One will be used to qualify the team for Round Two. In Round Two, teams will be given a case study to analyze, including physical evidence and written information such as police reports and an autopsy. Teams will have six (6) minutes to view the "crime scene" and thirty (30) minutes to write their conclusions with supporting evidence. This event aims to inspire members to be proactive future health professionals and critically examine elements of a forensic case.

**CAUTION:** *The content and pictures in the suggested resources are graphic in nature and may be considered offensive by some. HOSA Advisors should seek administrative and parental approval before allowing HOSA members to participate in this event.*

This event is intended for advanced level HOSA members who have already completed one or more courses in Medical Terminology and Anatomy & Physiology.

## Official References

The below references are used in the development of the test questions

- a. [Bertino, A., Bertino, P. \(Latest Ed\) Forensic Science Fundamentals. National Geographic Learning/South-Western Cengage Learning.](#)
- b. [Bell, S. \(Latest Ed\). Forensic Science. Taylor & Francis Group/CRC Press.](#)

Optional References: Competitors should have a strong background in Medical Terminology, Anatomy and Physiology, and Pathophysiology in order to best respond to the round two case study. The following resources are recommended study materials to assist competitors with these subjects. Round One test questions are NOT taken from these resources:

- a. [Simmers, L., Simmers-Narker, Simmers-Kobelak. \*DHO: Health Science\*. Cengage Learning. Latest edition.](#)
- b. [Ehrlich, Ann. \*Medical Terminology for Health Professions\*. Cengage Learning. Latest Edition.](#)
- c. [Frazier. \*Essentials of Human Diseases and Conditions\*. Elsevier. Latest edition.](#)

### **ROUND ONE: The Test**

Test Instructions: The written test will consist of 50 multiple-choice items in a maximum of 60 minutes.

The team test score average from Round One will be used to qualify the team for the Round Two case study.

#### Round I: Written Test Plan

The test plan for Forensic Science is:

- Forensic History and Careers - 10%
- Crime Scene and Death Investigation - 20%
- Forensic Toxicology and Pharmacology - 20%
- Forensic Anthropology - 10%
- Forensic Entomology - 10%
- Identification of Blood, Bloodstains, Biological Fluids and Stains - 10%
- Techniques of DNA Analysis - 10%
- Forensic Psychology and Psychiatry - 10%

#### **Sample Round One Test Questions**

1. What is the term for a conscious and deliberate attempt to minimize or deny symptoms of a mental disorder? (Bell pp 318)
  - A. Deception
  - B. Malingering
  - C. Dissimulation**
  - D. Incompetence
  
2. Where are blowfly eggs usually found on a dead body? (Bell pp 122)
  - A. Close to a wound or natural orifice**
  - B. Under any covering such as clothing, leaves, etc.
  - C. On the chest or in a hairy body area
  - D. Under the body close to the ground
  
3. When a victim drowns in freshwater, what term describes the massive destruction of RBC's? (Bertino pp 500)
  - A. Pneumothorax
  - B. Asphyxia
  - C. Sickling of RBC's
  - D. Autolysis**

### **ROUND TWO: The Case Study**

In Round Two, each team will be asked to solve the same case study. The case study is a secret problem that is not disclosed until the event begins. Professional ethics demand that competitors DO NOT discuss or reveal the secret topic until after the event has concluded. Competitors who violate this ethical standard will be penalized per [the GRRs](#).

No pre-printed or recorded materials/notes may be brought to the competition. Competitors will be provided with index cards for taking notes. They may keep these index cards with them throughout the event. Teams must bring pencils and have the option to bring one highlighter each to the competition.

There will be two parts per section as follows:

Part #1	Case study analysis	6 minutes
Part #2	Written conclusion	30 minutes + 5 minutes for digital submission

*OPTIONAL:* If the case study does not involve a crime scene or physical evidence and instead is in a written format, then competitors will be directed to a room for developing their written conclusion and will be given a total of 36 minutes.

Competitors will use the evidence and information they gather in order to develop a written conclusion as follows:

### **Part #1: Case Study Analysis**

This part of the event allows competitors to gather evidence/information about the death. There may be a written police report and/or other written information about the case. There may be physical evidence in the room for the competitors to visually analyze, including but not limited to a manikin, bones, dental x-rays, photos, or other physical evidence. A digital tool, such as a table from Anatomage, may also be an option used in this part of the event. There may also be a police officer, medical examiner and/or witness(s) in the room. Each team will see the same information/evidence, possibly at the same time, but will not be allowed to interact with anything they see or hear. Actors/personnel will not answer any questions.

### **Part #2: Written Conclusion**

Competitors will identify the time of death range, immediate cause of death, manner of death, other conditions contributing to cause of death (if applicable), and evidence (pertinent observations and facts) about the case that explains why teams came to the conclusions they reached.

One copy of the written information will be provided per team in Part #1, including the police report, autopsy, etc., if applicable. If provided, team members will be allowed to take notes on these documents and use them to help develop their written conclusion (Part #2). These will be returned to event personnel at the conclusion of this event.

**Time Remaining Announcements:** There will be an announcement when 15 minutes and 5 minutes remain of the 30-minute written conclusion portion of the event. An additional five (5) minutes will then be awarded to submit their written conclusion; there will be no additional time remaining announcements. The timekeeper will stop teams once five (5) additional minutes have passed and teams will be excused. State and ILC event staff have the discretion to adjust this 5 minute time frame to account for the submission process used.

### **Competitor Must Provide**

- Highlighters (optional)



# FORENSIC SCIENCE - ROUND TWO

Section # \_\_\_\_\_

Judge's Signature \_\_\_\_\_

Team # \_\_\_\_\_

Division: SS \_\_\_\_\_ PSC \_\_\_\_\_

Items Evaluated	Excellent 10 points	Good 8 points	Average 6 points	Fair 4 points	Poor 0 points	JUDGE SCORE
1. Time of Death Range	Indicates the date and approximate time of death correctly.	N/A	Indicates a close approximation of the correct date and time of death.	N/A	Date or time is not close to the actual date or time of death or is missing altogether.	
2. Immediate Cause of Death	Accurately identifies the medical cause of death.	N/A	A partial identification of the medical cause of death is included.	N/A	The response does not reflect an accurate cause of death.	
3. Manner of Death: - Natural - Accident - Suicide - Homicide - Undetermined	Accurately identifies the manner of death as one of the five listed.	N/A	N/A	N/A	Does not accurately identify the-manner of death as one of the five listed.	
4. Other Conditions, as applicable	Team includes most specific and relevant factors contributing to the death but not considered the immediate cause.	N/A	Team includes only some of the relevant factors contributing to the death but not considered the immediate cause.	N/A	Team is not able to identify contributing factors to the death.	
5. EVIDENCE - Connects Evidence to Conclusions	Writing includes numerous pieces of evidence that completely supports the conclusions with logical details, facts, or examples.	N/A	Writing includes some pieces of evidence that partially supports the conclusions.	N/A	Writing does not include any pieces of evidence to support the conclusions.	
6. EVIDENCE -Application of Knowledge	Team draws numerous accurate conclusions using their knowledge of human anatomy and physiology and forensic science	N/A	Team draws several accurate conclusions using their knowledge of human anatomy and physiology and forensic science	N/A	Team draws very few accurate conclusions using their knowledge of human anatomy and physiology and forensic science	
7. EVIDENCE - Concise, clear and logical	Physical evidence of this case was explained in a clear, concise and logical manner.	Physical evidence was explained in a way that was mostly clear, concise and logical.	The evidence was explained moderately clear, concise, and logically.	Some of the evidence was explained in a clear and logical manner.	The evidence was not explained in a clear or concise manner and information was not logical.	
Items Evaluated	Excellent 5 points	Good 4 points	Average 3 points	Fair 2 points	Poor 0 points	JUDGE SCORE
8. Neatness and Spelling	Remarks are written neatly and spelled correctly.	Most of the remarks are written neatly and spelled correctly.	Some of the remarks were written neatly and spelled correctly.	The remarks have several errors and spelling errors.	Work appears to be sloppy and many words are spelled incorrectly.	
9. Grammar and Mechanics	Errors in grammar, spelling, punctuation, and capitalization are minimal and not distracting. (0-1 errors).	Minimal errors are found (1-2 errors). They do not detract from the general flow of the written conclusion.	2-3 errors were found, and they detract from the overall flow of the written conclusion.	There are 3-4 errors which detract from the overall meaning and flow of the written conclusion.	More than five errors are found. Errors are glaring, and the written conclusion is difficult to read.	
<b>Total Points (80):</b>						