# Forensic Science I Course No. 44225 Credit: 1.0

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| --- | --- | --- | --- |
| **Student name:** |  | **Graduation Date:** |  |

Pathways and CIP Codes:Corrections, Security, Law, & Law Enforcement Services (43.0199) – Law Enforcement Strand

Course Description: A **technical level** course that follows a comprehensive background in biology and chemistry and provides students with an in-depth knowledge and skills needed to pursue postsecondary training in LPSCS careers requiring Forensic Science (i.e. Forensic Anthropology, Forensic Medicine, Medical Examiner).

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Understand and Discuss the Fundamentals of Forensic Science

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Discuss careers available in the field of forensic science and the training required for each. |  |
| 1.2 | Distinguish individual evidence from class evidence and discuss its relevance in a court of law. |  |
| 1.3 | Justify use of observation skills and debate validity of eyewitness accounts of events. |  |
| 1.4 | Practice HazMat and Blood borne Pathogen safety. |  |

## Benchmark 2: Differentiate and Demonstrate Crime Scene Investigation Procedures

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Differentiate procedures for securing and documenting a crime scene. |  |
| 2.2 | Perform evidence collection, storage, and report writing. |  |
| 2.3 | Photograph a crime scene. |  |
| 2.4 | Measure and sketch a crime scene. |  |

## Benchmark 3: Identify, Analyze, and Compare Trace Evidence Techniques

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Develop, analyze, and classify fingerprints. |  |
| 3.2 | Identify and compare bite-marks and shoe prints. |  |
| 3.3 | Identify, analyze, and compare various hair samples. |  |
| 3.4 | Compare various types of fibers through physical analysis. |  |

## Benchmark 4: Analyze Evidence Using Forensic Entomology

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Outline insect succession on a body. |  |
| 4.2 | Deduce time of death using insect evidence. |  |

## Benchmark 5: Predict and Determine Various Aspects of Evidence via Human Remains

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Use human bones to determine height, sex, age range, and ancestry. |  |
| 5.2 | Predict Postmortem Interval using rigor mortis, algor mortis, livor mortis, and stages of decomposition. |  |

## Benchmark 6: Distinguish and Explore Evidence via Serology

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Distinguish between human and animal blood. |  |
| 6.2 | Simulate blood typing and describe its role in forensic investigations. |  |
| 6.3 | Explore bloodstain patterns as a function of velocity, direction, height, and angle of impact. |  |

## Benchmark 7: Describe and Discuss DNA Analysis of Evidence

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Describe evidence collection and processing to obtain DNA profiles. |  |
| 7.2 | Isolate and extract DNA from cells. |  |
| 7.3 | Justify use of DNA to determine family connections. |  |
| 7.4 | Discuss genealogy and how it is used in criminal cases. |  |
| 7.5 | Examine advances in DNA analysis that improve the Justice System. |  |

## Benchmark 8: Explain and Examine Various Aspects of Toxicology

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Explain tests to identify various drugs and poisons. |  |
| 8.2 | Examine how various drugs & poisons affect/move through the human body. |  |

## Benchmark 9: Deduce, Compare and Contrast Characteristics of Soil and Glass Analysis

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Deduce, compare, and contrast characteristics of various types of soil. |  |
| 9.2 | Use density and refractive index to determine differences in small pieces of glass. |  |

## Benchmark 10: Determine and Investigate Ballistic and Tool Marks

### Competencies

| **#** | **Description** | **rating** |
| --- | --- | --- |
| 10.1 | Distinguish between types of firearms and ammunition. |  |
| 10.2 | Use bullet trajectory to determine position of shooter. |  |
| 10.3 | Design and conduct scientific investigations to match tool marks in a criminal investigation. |  |

## Benchmark 11: Characterize and Describe Various Handwriting and Document Analysis Techniques

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 11.1 | Characterize facets of individual handwriting. |  |
| 11.2 | Distinguish between different handwriting styles. |  |
| 11.3 | Use paper chromatography to identify ink used. |  |
| 11.4 | Describe features of paper currency used to detect counterfeit bills. |  |
| 11.5 |  |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

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