# Forensic Science I Course No. 44225 Credit: 1.0

|  |  |  |  |
| --- | --- | --- | --- |
| **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

(785) 296-4908

pathwayshelpdesk@ksde.org



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.