**COURSE DESCRIPTION**

**Course Title:** Forensics Intro Virt

**Course Number:** 10132

**Course Prerequisites:** none

**Course Description:** Our notions of forensics are often fictionalized, containing fantastic notions of what forensic science really is. In this course, you’ll explore the truth behind the science from its history to its modern-day developments. You will learn how detectives conduct thorough investigations as well as common equipment and methods that are used throughout the field. Finally, you will learn about collecting and analyzing the most common types of evidence found at a crime scene and how they guide investigators to answers. Let’s track your interests and continue your pursuit of justice through science!

**Suggested Grade Level**: Grades 9-12

**Length of Course:** One Semester

**Units of Credit:** .5

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**

CSPG 59

To find the CSPG information, go to [CSPG](https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx)

**Certification verified by the WCSD Human Resources Department:** Yes No

**WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

☒F – Final Average ☒MP – Marking Period ☒EXM – Final Exam

**GPA Type**: ☐ GPAEL-GPA Elementary ☐ GPAML-GPA for Middle Level ☒ NHS-National Honor Society

☐ UGPA-Non-Weighted Grade Point Average ☒ GPA-Weighted Grade Point Average

**State Course Code**: 03214

To find the State Course Code, go to [State Course Code](https://nces.ed.gov/forum/sced.asp), download the Excel file for *SCED*, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:**  Click or tap here to enter text.

**Publisher:** Click or tap here to enter text.

**ISBN #:**  Click or tap here to enter text.

**Copyright Date:** Click or tap here to enter text.

**WCSD Board Approval Date:** Click or tap here to enter text.

**Supplemental Materials:** Click or tap here to enter text.

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** Click or tap to enter a date.

**Date Approved:**  Click or tap to enter a date.

**Implementation Year:** Click or tap here to enter text.

**SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student’s Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

**ASSESSMENTS**

**PSSA Academic Standards, Assessment Anchors, and Eligible Content:** The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

**Formative Assessments:** The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

**Effective formative assessments for this course include:** Quizzes, homework, discussions

**Summative Assessments:** The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

**Effective summative assessments for this course include:** unit assessments and semester exams

### Unit 1: Investigating Crime: What’s It All About?

When you watch crime television shows or movies, there is usually one or two main investigators who handle all of the evidence from start to finish. They seem to have an endless amount of expertise and give results from multiple areas of study. But that’s not how forensics works in the real world. It takes years to become an expert in a particular area of study and teams of scientists to collect, analyze, and present the evidence. So how did we get here, and what are the expectations and roles of forensics investigators? Let’s find out.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Describe how forensic science grew and changed over time
* Summarize important recent developments in forensic science
* Understand the professional expectations of forensic scientists
* Explain the consequences of unethical behavior
* Distinguish between criminalistics and criminology
* Identify the roles of crime scene investigators

Unit 1 Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: History of Forensic Science | Lesson |
| Lesson 02: Modern Forensic Developments | Lesson |
| Lesson 03: Expectations of Forensic Science Professionals | Lesson |
| Lesson 04: Practicing Ethics | Lesson |
| Lesson 05: Disciplines in Forensic Science | Lesson |
| Lesson 06: Roles and Responsibilities | Lesson |
| Critical Thinking Questions | Submission |
| Activity 1: What Do I Want to Learn? | Submission |
| Activity 2: What Historical Contributions Shaped Modern Forensics? | Submission |
| Activity 3: Who Works in the Forensics Lab? | Submission |
| Unit 1 Discussion 1 | Discussion |
| Unit 1 Discussion 2 | Discussion |
| Unit 1 Quiz | Multiple Choice |

### Unit 2: Think Like a Scientist

Where would forensic science be without science? It gives the practice of forensics a specific way of drawing conclusions that we can depend on. It also pushes scientists to be consistent, to challenge assumptions, and to incorporate the work of other scientists. Fortunately, science has also led to many kinds of high-tech equipment that helps scientists reach the kind of definitive conclusions that criminal justice requires. Science shows us the way and gives us the tools to get the job done.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Explain the importance of the scientific method to forensic science
* Make keen observations at a crime scene
* Ask a variety of questions and make strong hypotheses
* Describe how various equipment is used to test hypotheses
* Suggest the best way forward in a case based on the results of tests

Unit 2 Assignments

|  |  |
| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: Science and the Scientific Method | Lesson |
| Lesson 02: Observation | Lesson |
| Lesson 03: From Research to Hypothesis | Lesson |
| Lesson 04: Equipment and Technology | Lesson |
| Lesson 05: Analyzing and Sharing Results | Lesson |
| Critical Thinking Questions | Submission |
| Cumulative Project 1: How Do I Turn Questions into Hypotheses? | Submission |
| Cumulative Project 2: How Do I Test My Hypothesis? | Submission |
| Unit 2 Discussion 1 | Discussion |
| Unit 2 Discussion 2 | Discussion |
| Unit 2 Quiz | Multiple Choice |

### Unit 3: Act Like a Scientist

Forensic science is all about data, but let’s get more specific. There are different kinds of data and many ways and places to collect it. Forensic scientists also use a variety of tools and methods to analyze and communicate data and interpretations of data. Even the way that forensic scientists think will shape these reports, so it’s key to use a range of critical thinking skills. Standardization helps with all stages of the process, from documenting the scene to writing reports that can stand up in court decades later. There can be a lot to keep track of, so let’s see how to organize the chaos.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Demonstrate safe practices during laboratory and field investigations
* Employ a range of tools and methods in the collection and analysis of data
* Create documents that clearly show data and interpretations of data
* Examine data in a neutral manner that minimizes common biases

Unit 3 Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: Safety First | Lesson |
| Lesson 02: Collecting and Analyzing Data | Lesson |
| Lesson 03: Communicating Findings | Lesson |
| Lesson 04: Critical Thinking | Lesson |
| Critical Thinking Questions | Submission |
| Activity 1: What’s In the News? | Submission |
| Cumulative Project 3: What Laboratory Materials are Used in Forensic Science? | Submission |
| Activity 2: How Do I Prepare for Laboratory Work? | Submission |
| Cumulative Project 4: How Do I Collect Data? | Submission |
| Unit 3 Discussion 1 | Discussion |
| Unit 3 Discussion 2 | Discussion |
| Unit 3 Quiz | Multiple Choice |

### Unit 4: At the Crime Scene

When a crime occurs and the police are called, a crime scene investigator will arrive to document the scene and collect evidence. There are strict rules and clear expectations when it comes to the collection and preservation of evidence. Their importance cannot be overstated. Any wrong step along the way can spoil an investigation. They keep the work within the bounds of the Constitution. They make sure the current team as well as future investigators can do their work. In short, they ensure justice and fairness for all involved.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Conduct legal searches
* Search a crime scene
* Document a crime scene
* Secure evidence
* Communicate with a team of forensic scientists

Unit 4 Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: Rules of Evidence | Lesson |
| Lesson 02: Searching the Scene | Lesson |
| Lesson 03: Crime Scene Sketches | Lesson |
| Lesson 04: Evidence Collection | Lesson |
| Lesson 05: Teamwork in Forensic Science | Lesson |
| Critical Thinking Questions | Submission |
| Activity: What Have I Learned So Far? | Submission |
| Cumulative Project 5: How Can I Secure Evidence? | Submission |
| Cumulative Project 6: How Do I Analyze Evidence in the Lab? | Submission |
| Unit 4 Discussion 1 | Discussion |
| Unit 4 Discussion 2 | Discussion |
| Unit 4 Quiz | Multiple Choice |

### Midterm Exam

* Review information acquired and mastered from this course up to this point.
* Take a course exam based on material from the **first half** of the course (**Note:** You will be able to open this exam only one time.)

Midterm Exam Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Midterm Exam | Multiple Choice |
| Midterm Discussion | Discussion |

### Unit 5: Back at the Lab

Much of a forensic scientist’s job takes place in a lab, but what exactly do they do there? In short, they gather clues in an effort to uncover the truth around a case. Indeed, given the right equipment and an eye for detail, forensic scientists can build cases from tiny elements invisible to the human eye. It is amazing how much information they can gather from samples of trace evidence. Whether it is reading glass to tell where a bullet came from or confirming that paint traces on a suspect’s clothing match those found at the crime scene, forensic scientists bring technology to bear to make a big deal out of little details.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Differentiate among types of glass and recognize the qualities of these types
* Identify the elements of paint and how to collect samples at a crime scene
* Distinguish types of fiber and recognize their role in crime scene investigations
* Recognize the structure of hair and discrete elements that help identify the source of the hair
* Determine the appropriate microscope for a variety of types of trace evidence

Unit 5 Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: Getting to Know Glass | Lesson |
| Lesson 02: Properties of Paint | Lesson |
| Lesson 03: Figuring Out Fibers | Lesson |
| Lesson 04: Hints from Hair | Lesson |
| Lesson 05: A Closer Look at Trace Evidence | Lesson |
| Critical Thinking Questions | Submission |
| Cumulative Project 7: What Key Features Should I Look for Using Microscopy? | Submission |
| Cumulative Project 8: What Trace Evidence Do I Encounter in a Day? | Submission |
| Cumulative Project 9: How Can I Macroscopically Examine Trace Evidence? | Submission |
| Unit 5 Discussion 1 | Discussion |
| Unit 5 Discussion 2 | Discussion |
| Unit 5 Quiz | Multiple Choice |

### Unit 6: Fingerprint Identification

We’ve all seen it on television and in movies. The suspect brushes their finger across a table, leaving a single fingerprint. Investigators spot it immediately, submit it to a database, and are knocking down the suspect’s door after the first ad break. Real life is a bit more complicated than that, but the steps aren’t far off. Indeed, collecting and analyzing fingerprints is an essential part of forensic science. It’s led investigators to countless suspects. To do it well, they need to first locate fingerprints. Then, depending on the surface, they’ll use a method of their choosing to capture them. Back in the lab, they’ll determine exactly what kind of print they have and whether a match can be found in the national database. It’s a bit slower than TV, but fingerprints really do lead investigators to suspects’ doors.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Distinguish and categorize different types of fingerprints
* Collect and process fingerprints and other imprints from a crime scene
* Analyze and compare fingerprints and other imprints in a lab
* Describe the history and role of databases in making biometric data available to law enforcement

Unit 6 Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: Fingerprint Basics | Lesson |
| Lesson 02: Collecting Fingerprints and Other Imprints | Lesson |
| Lesson 03: Processing Fingerprints | Lesson |
| Lesson 04: Identifying Fingerprints with Technology | Lesson |
| Critical Thinking Questions | Submission |
| Cumulative Project 10: How Can I Collect and Analyze Fingerprints? | Submission |
| Activity: How Can I Lift Latent Fingerprints? | Submission |
| Unit 6 Discussion 1 | Discussion |
| Unit 6 Discussion 2 | Discussion |
| Unit 6 Quiz | Multiple Choice |

### Unit 7: Working with Biological Fluids

Forensic scientists need to know how to handle blood at the scene. Blood shows up in a variety of locations and quantities, and these differences impact how blood is collected and stored for analysis. But knowing blood science well is only a start; there are other biological fluids to collect from a scene as well. Because this is a profession based on solid evidence, the identification, collection, and storage of bodily fluid evidence requires care and attention to make sure all evidence makes it back to the lab in the best shape for testing.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Describe the major characteristics of human blood
* Explain how alcohol is processed in the body and impacts normal functioning
* Identify and collect blood and other bodily fluids from a crime scene
* Move blood and other bodily fluids to a lab in order to carry out more detailed tests and ensure proper storage

Unit 7 Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: The Basics of Blood | Lesson |
| Lesson 02: Blood Alcohol Content | Lesson |
| Lesson 03: At the Crime Scene | Lesson |
| Lesson 04: Lab Analysis of Biological Fluids | Lesson |
| Critical Thinking Questions | Submission |
| Activity 1: How is Blood Type Determined? | Submission |
| Activity 2: How Can I Use Punnett Squares? | Submission |
| Cumulative Project 11: How Can I Test Bodily Fluid Tests? | Submission |
| Unit 7 Discussion 1 | Discussion |
| Unit 7 Discussion 2 | Discussion |
| Unit 7 Quiz | Multiple Choice |

### Unit 8: Analyzing Blood

What looks like a messy crime scene to the untrained eye is actually a wealth of information to the forensic scientist. The patterns left behind through the physics of the event leave a story that can be retold to discover all kinds of details about what actually happened. The trained eye can discern everything, from the kind of weapon and the intensity of the strike, to the movements of the victim and assailant. In this case, we’re going to look specifically at the blood patterns left behind for the forensic scientist to interpret.

### What will you learn in this unit?

**After studying this unit, you will be able to:**

* Describe what the characteristics of blood at a crime scene can reveal about crimes
* Use patterns of blood and blood drops to reveal likely past actions
* Document blood at the crime scene
* Collaborate effectively

UNIT 8 Assignments

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| --- | --- |
| **Assignment** | **Type** |
| Lesson 01: Blood Spatter Characteristics | Lesson |
| Lesson 02: Common Blood Spatter Patterns | Lesson |
| Lesson 03: Documentation and Evaluation | Lesson |
| Lesson 04: The Human Factor | Lesson |
| Critical Thinking Questions | Submission |
| Cumulative Project 12: How Can I Scientifically Illustrate Blood Drops? | Submission |
| Cumulative Project 13: How Can I Simulate Blood Spatter? | Submission |
| Activity: What Have I Learned? | Submission |
| Unit 8 Discussion 1 | Discussion |
| Unit 8 Discussion 2 | Discussion |
| Unit 8 Quiz | Multiple Choice |

### Final Exam

* Review information acquired and mastered from this course up to this point.
* Take a course exam based on material from the **second half** of the course (**Note:** You will be able to open this exam only one time.)

Final Exam Assignments

|  |  |
| --- | --- |
| **Assignment** | **Type** |
| Final Exam | Multiple Choice |
| Final Discussion | Discussion |