# Forensic Science 12
# Board/Authority Approved Course

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| North Okanagan Shuswap | School District 83 |
| Developed By: Erinn Milne | Date Developed: June 2019 |
| School Name: Education Outreach Program | Principal's Name: Mr. Rob MacAulay |
| Superintendent Approval Date: | Superintendent Signature: |
| Board/Authority Approval Date: | Board/Authority Chair Signature: |
| Course: Forensic Science | Grade Level of Course: 12 |
| Number of Course Credits: 4 | Number of Hours of Instruction: 120 |

**Board/Authority Prerequisite(s):**
Not Applicable

**Special Training, Facilities, or Equipment Required:**
Computer as it is an on-line course.

**Course Synopsis:**
Although the crime scene represents the first step in solving crimes through forensic science, the crime laboratory plays a critical role in the analysis of evidence. This course focuses on the analysis of evidence and testing that takes place within this setting. We will examine some of the basic scientific principles and knowledge that guides forensic laboratory processes, such as those testing DNA, toxicology, and material analysis. Techniques such as microscopy, chromatography, odontology, entomology, mineralogy, and spectroscopy will be examined.

**Goals and Rationale:**

**Goals:**

- Develop the knowledge on how bones and bugs help solve crimes.
- Develop an understanding of the forensic science laboratory techniques for identifying and testing drug evidence and toxin.
- Develop the knowledge on how paint, soil, and trace evidence is found and analyzed.
- Develop an understanding of the newer trends in forensic science, including the investigation of digital crime.

**Rationale:**

Providing student choice is a key understanding of the new curriculum in BC. This choice needs to go beyond choosing projects or assignments within a course to include choosing entire courses that interest and intrigue students. Through providing a variety of elective courses, students will be able to explore subjects they are passionate about or just curious about. High school students often aren't sure what they want to do after high school. By offering a wide variety of introductory and exploratory courses, students get the opportunity to safely explore the possibilities before committing to a career plan. This course will allow students who are passionate about forensics to dig deeper into the field. It allows them to continue the exploration they may have started in Forensics 11.

**Aboriginal Worldviews and Perspectives:**

**Declaration of First Peoples Principles of Learning:**

- Learning is holistic, reflexive, reflective, experiential, and rational.
- Learning involves recognizing the consequences of one's actions.
- Learning is embedded in memory, history, and story.
- Learning involves patience and time.
- Learning requires exploration of one's identity.

**Declaration of Aboriginal Worldviews and Perspectives:**

- Forensics connects the learner to the stories of other communities and people.
- Forensics introduces the learner to the practical applications of the theories and concepts presented.

# Course Name: Forensic Science 12

## BIG IDEAS

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| Forensic scientists use both screening and confirmatory testing processes when analyzing drug evidence. | Forensic scientists analyze detailed data and pay extremely close attention to differences or discrepancies. | Forensic scientists use technology to assist in the analysis of evidence. | Forensic scientists need a strong understanding of chemical and biochemical processes. | Forensics can be broken down into a number of specialized areas including entomology, anthropology, odontology, etc. |

## Learning Standards

| Curricular Competencies | Content |
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| *Students are expected to be able to do the following:*<br><br>• Investigate the issues in collecting, preserving and using drug evidence in the criminal justice system.<br>• Investigate the use of forensic anthropology in the criminal justice system.<br>• Discuss some of the recent advances in forensic techniques and testing.<br>• Examine some of current limitations of forensic science investigations.<br>• Investigate some of the possible future changes in forensic science.<br><br>**Research and Inquiry Application**<br>• Demonstrate effective communication skills.<br>• Recognize and use critical-thinking skills.<br>• Evaluate the reliability of a website and recognize those that are appropriate for use in anthropology.<br>• Demonstrate appropriate professional behavior.<br>• Demonstrate respect for individual and cultural differences and recognize the importance of diversity in the workplace. | *Students are expected to know the following:*<br><br>• drug evidence<br>  ○ some of the different types of drugs and their effects.<br>  ○ some of the common ways that samples can be taken from humans to test for drugs.<br>  ○ the use of screening tests in criminal investigations.<br>  ○ the use of confirmatory tests in criminal investigations.<br>• questioned documents and exemplars.<br>  ○ some of the aspects that document examiners use to compare handwriting.<br>  ○ some of the aspects that document examiners use to compare typescript.<br>  ○ some of the ways that document alterations can be found.<br>  ○ how document examiners find forgeries and counterfeit materials.<br>• poisonous substances<br>  ○ uses throughout history.<br>  ○ how poisons are absorbed and transmitted through the body.<br>  ○ techniques used by forensic scientists to identify poisons and other toxins. |

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| | ○ the collection and preservation of blood evidence.<br>○ the role of toxicologists in criminal investigations.<br>• trace evidence<br>○ the usefulness of various forms of trace evidence in investigating crimes.<br>○ how protons, neutrons, electrons, and other aspects are used by forensic scientists to study trace evidence.<br>○ the nature of matter and its relationship to elements and compounds.<br>○ some of the tests used to identify and compare trace evidence.<br>○ different types of microscopes and how they work.<br>• forensic entomology, its history and its uses.<br>○ what insects and arthropods are common pieces of evidence in criminal investigations.<br>○ some of the tests used in forensic entomology.<br>• forensic anthropology and forensic odontology and their histories.<br>○ some of the characteristics of bones and teeth that provide forensic scientists with information about the person.<br>○ some of the tests used in the area of forensic anthropology.<br>• computer evidence<br>○ the areas of a computer where information can be retrieved.<br>○ how internet activity can be traced.<br>○ Investigate how emails and other aspects can be traced and examined.<br>○ Consider how computer evidence can be collected and preserved. |