

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**COURSE OUTLINE**

**COURSE TITLE:** Introduction to Applied Forensic Science

**CODE NO. :** NRL 210 **SEMESTER:** 2

**PROGRAM:** Natural Resources/Environmental Law – Inspection and Enforcement

**AUTHOR:** Paul Berger

**DATE:** Aug 26, 2012 **PREVIOUS OUTLINE DATE** N/A

**APPROVED:** “COLIN KIRKWOOD”

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	DEAN	DATE

**TOTAL CREDITS:**

**PREREQUISITE(S):** NONE

**HOURS/WEEK:** 3

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**I. COURSE DESCRIPTION:**

Forensic Science by definition is the application of science to law. This course will cover the basic concepts of Forensic Science and how they are used in crime scene investigations. The focus of this course will be to introduce students to some of the forensic science disciplines, the science related to that discipline and the proper method of evidence collection for that discipline. This course will provide students with an understanding of the scientific method and the application of critical thinking as it is applied to the various forensic disciplines. During the course the students will have hands on opportunities to develop some techniques and skills discussed in class.

**II. LEARNING OUTCOMES AND ELEMENTS OF PERFORMANCE:**

- 1) Define Forensic Science and its application in investigation
- 2) Understand crime scene investigation
- 3) Identify and discuss the difference between class and individual evidence characteristics
- 4) Identify and discuss the types of evidence collection, proper collecting methods and continuity of evidence
- 5) Appreciate the roles of forensic scientists and forensic crime scene examiners
- 6) Appreciate the role that Forensic Science plays in the legal system

Upon successful completion of this course, the student will demonstrate the ability to:

- 1) Define Forensic Science and its application in investigation
  - Define Forensic Science
  - List the major disciplines it encompasses
  - Recognize the major contributors to forensic science
  - Identify forensic science lab services
  - Identify the differences between a public and a private lab
  - Discuss the admissibility of evidence in the courtroom
  - Identify other specialized forensic services offered outside the crime lab
  - Understand the applications of various microscopes in paint examination
- 2) Understand crime scene investigation
  - Identify the role of the first responder and the lead investigator
  - Identify the role of the first police officer on scene
  - Identify the types of crime scene searches
  - Identify special circumstances at the crime scene such as environment, victims, safety and witnesses
  - Explain proper crime scene documentation including: notes, photography, videography, sketches, evidence collection
- 3) Identify and discuss the difference between class and individual evidence characteristics
  - Definition of physical evidence
  - Explain types of physical evidence found at a crime scene

- Explain the difference between identification and comparison of physical evidence
  - Understand the definition of class and individual characteristics of evidence
  - Understand Fingerprint characteristics
  - Identify the three major fingerprint patterns
  - Explain the difference between visible, latent and plastic fingerprints
  - Discuss the techniques of fingerprint development and preservation
  - Explain the use of footprint evidence at a crime scene
  - Discuss the characteristics of footprint evidence, its collection and preservation
- 4) Identify and discuss the types of evidence collection, proper collecting methods and continuity of evidence
- Identify the proper techniques for handling evidence to avoid contamination and damage
  - Understanding collecting and packaging procedures of common types of evidence
  - Explain the chain of custody and continuity of evidence
  - Define different methods for documenting blood stain patterns at a crime scene
  - Identify the conditions necessary to initiate and sustain combustion
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- 5) Appreciate the roles of forensic scientists and forensic crime scene examiner
- Appreciate the difference between animal and human hairs
  - Explain the proper collection of forensic hair and fiber evidence
  - Identify the most useful examinations for performing a paint comparison
  - Explain the important forensic properties of soil
  - Explain the difference between nuclear and mitochondrial DNA
  - Understanding the procedure for proper preservation of biological evidence for the laboratory
  - Appreciate the information that can be gained from bloodstain pattern analysis about the events involved in a violent crime
  - Identify each classification of low, medium and high velocity impact spatter and how they are created
  - Describe some laboratory procedures used to detect and identify hydrocarbon residue
  - Collection of possible physical evidence at a suspected arson scene.
  - List how explosives are classified
  - Identify some common commercial, homemade and military explosives
- 6) Appreciate the role that Forensic Science plays in the legal system
- Explain the use of national databases used by scientists
  - Explain the use of AFIS
  - Role and responsibility of an expert witness

**III. TOPICS**

1. Crime scene investigation
2. Physical evidence
3. Evidence continuity
4. Impression evidence
5. Trace evidence
6. Blood patterns
7. Fires and explosions

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS**

Forensic Science: Saferstein, Richard. (2009) *From Crime Scene to the Crime Lab.*  
 Pearson Education, Inc, Upper Saddle River, New Jersey.  
 ISBN-13: 978-0-13-515849-4

**V. EVALUATION PROCESS/GRADING SYSTEM:**

Mid-Term Exam	25%
Assignments	15%
Lab activity	20%
Final Exam	40%

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90-100%	4.00
A	80-89%	4.00
B	70-79%	3.00
C	60-69%	2.00
D	50-59%	1.00
F (Fail)	49% and below	0.00

CR (Credit)	Credit for Certificate requirements has been awarded.
S	Satisfactory achievement in course subject area and lab.
U	Unsatisfactory achievement in course subject area and lab.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for the course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from course without academic penalty.

**VI. SPECIAL NOTES:****Attendance:**

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

**VII. COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline.