

# ANTH R118: INTRODUCTION TO FORENSIC SCIENCE

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**Originator**  
amelidonis

**College**

Oxnard College

**Discipline (CB01A)**

ANTH - Anthropology

**Course Number (CB01B)**

R118

**Course Title (CB02)**

Introduction to Forensic Science

**Banner/Short Title**

Intro to Forensic Science

**Credit Type**

Credit

**Start Term**

Fall 2021

**Catalog Course Description**

Forensic science is the study and application of science to the investigation of criminal and civil cases in the criminal justice system. This course introduces students to the scientific method and to the use of applied science from disciplines including anthropology, biology, chemistry, entomology, physics and others to benefit legal processes and investigations. Topics to be addressed will include the crime scene, blood pattern analysis, forensic pathology, toxicology, forensic anthropology, entomology, DNA and serology, fingerprints, criminal profiling, ballistics, fire and explosion investigation, tool marks and trace evidence.

**Taxonomy of Programs (TOP) Code (CB03)**

2202.00 - Anthropology

**Course Credit Status (CB04)**

D (Credit - Degree Applicable)

**Course Transfer Status (CB05) (select one only)**

A (Transferable to both UC and CSU)

**Course Basic Skills Status (CB08)**

N - The Course is Not a Basic Skills Course

**SAM Priority Code (CB09)**

E - Non-Occupational

**Course Cooperative Work Experience Education Status (CB10)**

N - Is Not Part of a Cooperative Work Experience Education Program

**Course Classification Status (CB11)**

Y - Credit Course

**Educational Assistance Class Instruction (Approved Special Class) (CB13)**

N - The Course is Not an Approved Special Class

**Course Prior to Transfer Level (CB21)**

Y - Not Applicable

**Course Noncredit Category (CB22)**

Y - Credit Course

**Funding Agency Category (CB23)**

Y - Not Applicable (Funding Not Used)

**Course Program Status (CB24)**

1 - Program Applicable

**General Education Status (CB25)**

Y - Not Applicable

**Support Course Status (CB26)**

N - Course is not a support course

**Field trips**

May be required

**Grading method**

Letter Graded

**Does this course require an instructional materials fee?**

No

**Repeatable for Credit**

No

**Units and Hours**

**Carnegie Unit Override**

No

**In-Class**

**Lecture**

**Minimum Contact/In-Class Lecture Hours**

52.5

**Maximum Contact/In-Class Lecture Hours**

52.5

**Activity**

**Laboratory**

**Total in-Class**

**Total in-Class**

**Total Minimum Contact/In-Class Hours**

52.5

**Total Maximum Contact/In-Class Hours**

52.5

**Outside-of-Class**

**Internship/Cooperative Work Experience**

**Paid**

**Unpaid**

**Total Outside-of-Class**

**Total Outside-of-Class**

**Minimum Outside-of-Class Hours**  
105

**Maximum Outside-of-Class Hours**  
105

**Total Student Learning**

**Total Student Learning**

**Total Minimum Student Learning Hours**  
157.5

**Total Maximum Student Learning Hours**  
157.5

**Minimum Units (CB07)**

3

**Maximum Units (CB06)**

3

**Student Learning Outcomes (CSLOs)**

**Upon satisfactory completion of the course, students will be able to:**

- |   |   |
|---|---|
| 1 | Apply forensic science and the scientific method to the analysis of crime scenes, evidence and human remains.   |
| 2 | Identify human remains and the various techniques used in determining time, cause, mechanism, and manner of death, sex, age, ancestry, identity, PMI, trauma and/or pathology from these remains. |
| 3 | Describe the cultural and psychological components of violence and utilize this information to develop profiles for violent offenders.  |
| 4 | Outline the role of forensic science within larger legal processes including law enforcement and war crimes inquiries.  |

**Course Objectives**

**Upon satisfactory completion of the course, students will be able to:**

- |   |   |
|---|---|
| 1 | Apply forensic science and the scientific method to the analysis of crime scenes and human remains.   |
| 2 | Apply critical thinking skills by identifying key questions and problems, creating and testing hypotheses, recognizing, evaluating and applying relevant ideas and theories, and developing and communicating informed conclusions. |
| 3 | Identify human remains and the various techniques used in determining time of death, sex, age, ancestry, identity, trauma and/or pathology from these remains.  |
| 4 | Describe the cultural and psychological components of violence and utilize this information to develop profiles for violent offenders.  |
| 5 | Outline the role of forensic science within larger legal processes including law enforcement and war crimes inquiries.  |

**Course Content**

**Lecture/Course Content**

1. Introduction to Forensic Science
  - a. Applying Science and the Scientific Method to Legal Investigations
  - b. The Role of Forensic Science in Legal Processes
  - c. Working with Law Enforcement
  - d. The History of Forensic Science
  - e. Ethics and Responsibilities
2. The Crime Scene

- a. Crime Scene Processing
- b. Legal Considerations
3. Physical Evidence
  - a. Common Types of Physical Evidence
  - b. The Significance of Physical Evidence
  - c. Evidence Collection and Preservation
4. Crime Scene Reconstruction and Analysis
  - a. Crime Scene Reconstruction
  - b. The Physics of Bloodstain Pattern Analysis
  - c. General Features of Bloodstain Formation
5. Death Investigation
  - a. Cause, Manner and Mechanism of Death
  - b. Forensic Pathology
  - c. Forensic Anthropology
  - d. Forensic Entomology
  - e. Forensic Odontology
6. Forensic Toxicology
  - a. Role of Forensic Toxicology
  - b. Chemistry and Toxicology
  - c. Alcohol and Drugs
  - d. Poisons
  - e. Tests
7. Fingerprints
  - a. History of Fingerprinting
  - b. Fundamentals of Fingerprints
  - c. Development of Prints
  - d. Print Analysis
8. Firearms, Tools and Other Impressions
  - a. Class Vs. Individual Characteristics
  - b. Types of Firearms
  - c. Bullet and Cartridge Comparisons
  - d. Firing Distance
  - e. Tool Mark Investigation
  - f. Casting and Comparison
  - g. Microscopic Analysis
9. DNA and Serology
  - a. What is DNA
  - b. DNA Profiling
  - c. Short Tandem Repeats
  - d. Sequencing
  - e. The Nature of Blood
10. Cultural and Psychological Components of Criminal Behavior
  - a. The History of Profiling
  - b. The Limitations of Profiling
  - c. Cultural, Psychological, and Sociological Aspects of Crime
11. Fire Arson and Explosion Investigation
  - a. Forensic Investigation of Fire
  - b. Chemistry of Fire
  - c. Collection and Preservation of Arson Evidence
  - d. Flammable Residues
  - e. Explosions and Explosives

**Laboratory or Activity Content**

None

**Methods of Evaluation**

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):

Written expression

**Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):**

Essay exams  
 Essays  
 Group projects  
 Objective exams  
 Projects  
 Problem-Solving Assignments  
 Problem-solving exams  
 Quizzes  
 Reports/papers  
 Research papers

## **Instructional Methodology**

**Specify the methods of instruction that may be employed in this course**

Audio-visual presentations  
 Computer-aided presentations  
 Collaborative group work  
 Class activities  
 Class discussions  
 Case studies  
 Distance Education  
 Demonstrations  
 Field trips  
 Group discussions  
 Guest speakers  
 Instructor-guided interpretation and analysis  
 Instructor-guided use of technology  
 Internet research  
 Lecture  
 Small group activities

**Describe specific examples of the methods the instructor will use:**

1. The instructor will lead discussions on topics that may include the history of and theories of forensic science, crime scene reconstruction, blood pattern analysis, fingerprinting, pathology, forensic anthropology, forensic entomology, DNA analysis, criminal profiling, etc.
2. The instructor will utilize lectures, films, and internet materials to explore and critically analyze topics relevant to the understanding and application of forensic science.
3. Students will apply forensic science techniques and theories to the analysis of evidence and utilize that evidence in scientific manner to reconstruct crime scenes, to determine cause, manner and mechanism of death, postmortem interval, age, sex, ethnicity of decedent, for fingerprint analysis, etc.

## **Representative Course Assignments**

### **Writing Assignments**

1. Analytic papers based on interpreting reading assignments.
2. Essays based on research conducted on specific criminal assailants and incidents.
3. Reports detailing the analysis of evidence at specific crime scenes.
4. Short answer responses to specific questions regarding the course materials such as osteology, blunt force trauma and other topics.

### **Critical Thinking Assignments**

1. Participate in class, online and small group discussions regarding the analysis of forensic evidence, forensic science theory and best practices in forensic science.
2. Students will complete short writing assignments analyzing provided evidence and crime scenes. For example, students will be shown skeletal remains and asked to write a report indicating the likely age, sex, ethnicity, cause, manner and mechanism of death for the decedent.

### **Reading Assignments**

1. Twenty to sixty pages per week from the course textbook and other relevant sources including newspapers describing active criminal cases.

### **Outside Assignments**

#### **Representative Outside Assignments**

Participating in online discussions related to the course materials for that particular week. Topics may include proper crime scene and evidence procedure, blood pattern analysis where students are asked to write a report evaluating blood patterns at a particular scene, death investigation where students are given scenarios and asked to determine cause, manner and mechanism of death, criminal profiling where students are asked to develop a profile of a murderer by analyzing a crime scene, etc.

### **Articulation**

#### **C-ID Descriptor Number**

AJ 150

#### **Status**

Approved

**District General Education**

- A. Natural Sciences**
- B. Social and Behavioral Sciences**
- C. Humanities**
- D. Language and Rationality**
- E. Health and Physical Education/Kinesiology**
- F. Ethnic Studies/Gender Studies**

**CSU GE-Breadth**

- Area A: English Language Communication and Critical Thinking**
- Area B: Scientific Inquiry and Quantitative Reasoning**
- Area C: Arts and Humanities**
- Area D: Social Sciences**
- Area E: Lifelong Learning and Self-Development**
- Area F: Ethnic Studies**

**CSU Graduation Requirement in U.S. History, Constitution and American Ideals:**

**IGETC**

- Area 1: English Communication**
- Area 2A: Mathematical Concepts & Quantitative Reasoning**
- Area 3: Arts and Humanities**
- Area 4: Social and Behavioral Sciences**
- Area 5: Physical and Biological Sciences**
- Area 6: Languages Other than English (LOTE)**

**Textbooks and Lab Manuals**

**Resource Type**

Textbook

**Description**

Houk, M Siegel, J (2015). *Fundamentals of Forensic Science* (3rd Edition). New York Elsevier (Latest Edition). 9780128000

**Resource Type**

Textbook

**Description**

Richard Saferstein (2017). *Criminalistics: An Introduction to Forensic Science* (12th). New York Pearson (Latest Edition).

## Distance Education Addendum

### Definitions

#### Distance Education Modalities

Hybrid (51%–99% online)

Hybrid (1%–50% online)

100% online

### Faculty Certifications

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.

Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.

Yes

### Regular Effective/Substantive Contact

#### Hybrid (1%–50% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Students will post on discussion board topics demonstrating their ability to apply forensic science such as describing the role of DNA in crime scene investigation.
E-mail	Faculty will communicate with students via email regarding course information and concerns.
Other DE (e.g., recorded lectures)	Faculty may record video lectures on the course content including videos on forensic theory, the history of forensic science, death investigation, crime scene reconstruction, DNA analysis, profiling, etc.
Video Conferencing	Faculty may utilize online live meetings with students to deliver lectures and have discussions on topics related to the course content.

#### Hybrid (51%–99% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
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Video Conferencing	Faculty may utilize online live meetings with students to deliver lectures and have discussions on topics related to the course content.

#### 100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Students will post on discussion board topics demonstrating their ability to apply forensic science such as describing the role of DNA in crime scene investigation.



E-mail	Faculty will communicate with students via email regarding course information and concerns.
Other DE (e.g., recorded lectures)	Faculty may record video lectures on the course content including videos on forensic theory, the history of forensic science, death investigation, crime scene reconstruction, DNA analysis, profiling, etc.
Video Conferencing	Faculty may utilize online live meetings with students to deliver lectures and have discussions on topics related to the course content.

**Examinations**

**Hybrid (1%–50% online) Modality**

Online  
On campus

**Hybrid (51%–99% online) Modality**

Online  
On campus

**Primary Minimum Qualification**  
ANTHROPOLOGY

**Review and Approval Dates**

**Department Chair**  
08/23/2020

**Dean**  
08/24/2020

**Technical Review**  
09/09/2020

**Curriculum Committee**  
09/09/2020

**DTRW-I**  
MM/DD/YYYY

**Curriculum Committee**  
11/25/2020

**Board**  
MM/DD/YYYY

**CCCCO**  
MM/DD/YYYY

**Control Number**  
CCC000562064

**DOE/accreditation approval date**  
MM/DD/YYYY