

**CEDAR
CREST
COLLEGE**



Chemistry 241 Crime Scene Reconstruction & Pattern Analysis

Professor:

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***Course
Overview:***

As the principle source of nearly all the physical evidence used during the investigation of a crime, it is critical that a crime scene is handled properly from the onset of the investigation. This involves much more than technicians following procedures to collect the various types of evidence that are commonly encountered.

Keen observational skills combined with a scientific thought process are needed to evaluate the significance of a virtually bottomless pit of physical evidence. It is critical that evidence is documented and collected based upon the formulation of meaningful hypotheses about events that transpired.

In order to fully understand and appreciate the value of this evidence, it is necessary for scientists undertaking this endeavor to have a good general knowledge of forensic science and its methods. In this course, students will begin learning basic concepts of criminalistics using a crime scene focus. Students will learn how to properly document a crime scene, recognize and collect physical evidence, and how to properly interpret physical patterns in reconstruction often associated with crime scenes. Students will also learn about the proper analysis and interpretation of particular types of evidence that contain physical patterns that can be used in individualization. The laboratory will focus on this aspect. The lecture part of the course will provide much of the theoretical knowledge required to complete the exercises.

***Course
Objectives:***

1. To familiarize the student with the role of the criminalist and other crime scene personnel in crime scene investigation.
2. To introduce the student to application of the scientific method in the managing and reconstruction of a crime scene.
3. To teach basic concepts in criminalistics.
4. To introduce the student to the proper documentation of a crime scene and the handling and collection of various types of physical evidence.

**Learning
Outcomes:**

1. To develop competency in the use of techniques typically associated with crime scene reconstruction and pattern analysis.
2. To develop good note-taking skills in the examination of physical evidence.
3. To emphasize the importance of working as part of a team in crime scene investigation.

**Course
Assessment:**

Student's understanding of the lecture material will be evaluated through three written in-class examinations, a final examination, attendance and participation in class discussions. Students are expected to come prepared for each lecture and will be called upon to demonstrate this. The grade breakdown is as follows:

18 % Exam 1	26 % Final Exam (Cumulative)
18 % Exam 2	10 % Participation
18 % Exam 3	10 % Attendance

Grading:

Final Grades will be assigned as follows:

A	100-93	C	76-73
A-	92-90	C-	72-70
B+	89-87	D+	69-67
B	86-83	D	66-60
B-	82-80	F	59-0
C+	79-77		

**Required
Readings:**

Currently there is no single definitive source to cover the content of this course. To that end we will be using multiple texts and external reference sources. Texts will be listed below. You're welcome to purchase the texts, but there is another cost saving alternative. You have access to electronic versions of all the texts through ForensicnetBase. To access this service go to <http://library.cedarcrest.edu> then click on "full text" from the top menu. Next Scroll down to the FORENSICnet.Base tab and click on it. You must be on campus to use this feature. Other required readings will be posted on eCollege.

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| 1 The Practice of Crime Scene Investigation
Horswell
CRC Press, 2004 ISBN 0-748-40609-3 | 2 Advances in Fingerprint Technology 2 nd ed.
Gaensslen, and Lee
CRC Press, 2001 ISBN 0-8493-0923-9 |
| 3 Principles of Bloodstain Pattern Analysis
James, Kish, & Sutton
CRC Press, 2005 ISBN 0-8493-2014-3 | 4 Gunshot Wounds 2 nd edition
Di Maio
CRC Press, 1999 ISBN 0-8493-8163-0 |
| 5 Techniques of Crime Scene Investigation 7 th edition
Fisher
CRC Press, 2004 ISBN 0-8493-1691-X | |

Times and Locations:

Lectures will occur Tuesdays & Wednesdays from 9:30 until 10:45 in SCI 136

Course***Notifications:***

All course notifications will occur through your Cedar Crest College e-mail account. Please check this account regularly.

Cedar Crest Online:

This course will also be supported by an online classroom. You should have received an e-mail prior to the start of the semester detailing how to access and utilize the resources that will be made available to you here. If you have not, please notify your professor. This virtual classroom can be accessed through www.cedarcrestonline.net.

Community Standards for Academic Conduct:

Academic integrity and ethics remain steadfast, withstanding technological change. Cedar Crest College academic standards therefore apply to all academic work, including, but not limited to, handwritten or computer-generated documents, video or audio recordings, and telecommunications.

As a student at Cedar Crest College, each student shall:

- Only submit work which is her own.
- Adhere to the rules of acknowledging outside sources, as defined by the instructor, never plagiarizing or misrepresenting intellectual property.
- Neither seek nor receive aid from another student, converse with one another when inappropriate, nor use materials not authorized by the instructor.
- Follow the instructions of the professor in any academic situation or environment, including taking of examinations, laboratory procedures, the preparation of papers, properly and respectfully using College facilities and resources, including library and computing resources to ensure that these resources may be effectively shared by all members of the College community.
- Abide by the Cedar Crest Computer Use Policy.
- If a student perceives a violation of the Academic Standards, he/she will go to their instructor.
- If you are unable to resolve the problem with the instructor, you should go to the chair of the department. If you need further assistance after consultation with the instructor and the chair, you should see the Provost.

Honor Philosophy:

The Cedar Crest College Honor Philosophy states that students should uphold community standards for academic and social behavior in order to preserve a learning environment dedicated to personal and academic excellence. Upholding community standards is a matter of personal integrity and honor. Individuals who accept the honor or membership in the Cedar Crest College community of scholars pledge to accept responsibility for their actions in all academic and social situations and for the effect their actions may have on other members of the College community.

Violations of the Academic Honor Code will be dealt with according to the Cedar Crest College Forensic Science Program Procedures and Policy Manual.

Lecture Schedule

Week	Date	Topic	Reading
1	T 1/20	Introduction and Overview of Forensic Science	
1	R 1/22	Crime Scene Dynamics	1) {1.1to 1.14},{ 2}, {5.1to 5.11}, & {21} 5) {1},{2},{3},{4},{5}
2	T 1/27	Fundamentals of Photography	FSGTP (e-College)
2	R 1/29	Crime Scene and Digital Photography	FSGTP (e-College)
3	T 2/03	Friction Ridge Patterns	1) {9} 5) {pages 93-114}
3	R 2/05	Footwear & Tire Track Evidence	5) {9}
4	T 2/10	The Collection & Preservation of Physical Evidence	1){1.11-1-18} 5) {7}
4	R 2/12	Exam 1	Covers all material up until 2/10
5	T 2/17	No Class – AAFS (Online DNA Course)	What Every Law Enforcement Officer Should Know About DNA Evidence (e-College)
5	R 2/19	No Class – AAFS Meeting (Online DNA Course)	What Every Law Enforcement Officer Should Know About DNA Evidence (e-College)
6	T 2/24	Death Investigation	Death Investigation: A Guide for the Scene Investigator (e-College)
6	R 2/26	The Forensic Autopsy	4) {4}
7	T 3/3	Biological Evidence/ Contrast Enhancement	3) {14}, {15}, {16}
7	R 3/5	Bloodstain Patterns I	3) {1},{2},{3},{4}
8	T 3/10	No Class - Spring Break	
8	R 3/12	No Class - Spring Break	
9	T 3/17	Bloodstain Patterns II	3) {6},{7},{8},{9},{10}
9	R 3/19	Anthropology	e-College
10	T 3/24	2nd Exam	Covers fundamental concepts but focuses on material from 2/17 until 3/19
10	R 3/26	Firearms – Part I	4) {1}, {2}, 5) {10}
11	T 3/31	Firearms – Part II	4) {10}

<i>Week</i>	<i>Date</i>	<i>Topic</i>	<i>Reading</i>
11	R 4/2	Glass Fractures	e-College
12	T 4/7	Digital Evidence	e-College
12	R 4/9	Question Documents	e-College
13	T 4/14	Clandestine Laboratories	1) {14}
13	R 4/16	Fire and Explosive Evidence	1) {15}
14	T 4/21	3rd Exam	Covers fundamental concepts but focuses on material from 3/26 until 4/16
14	R 4/23	Report Writing	e-College
15	T 4/28	Review for Final	
15	R 4/30	Final Exam	Cover the entire semester