SCI 150(01 L1) Introduction to Forensic Science - Spring 2018

Instructor
Mr. Chris Cassano
cassancf@westminster.edu

Office Hours
Before Class/Lab
Others by appointment

Lecture
HSC (357)
T 6:30-9:30 pm

Lab
Chem. Lab/ HSC (319)
R 6:30-9:30 pm

Course Description
This course is designed to expose students to the SCIENCE behind forensic investigations, while simultaneously linking laboratory analysis to real world applications.

Course Objectives/Expectations
As a result of this course, students will:
- Become familiar with the forensic process from the crime scene to the courtroom
- Obtain hands-on experience performing various forensic techniques
- Understand the science behind significant forensic cases in history
- Acquire a better scientific background in order to evaluate current criminal cases and forensic applications
- Get real-world exposure to the field of forensic science

Text (Optional)

Attendance Policy
Due to the myriad of scientific concepts discussed throughout this course, and the limited number of class meetings, **attendance to class and laboratory is mandatory.**
- **More than 2 unexcused absences** will result in lowering of the student’s grade by 1 letter grade.
- Each subsequent unexcused absence will result in additional lowering of the student’s grade by 1 letter grade.
- Please refer to Westminster College Undergraduate Catalog for a descriptive list of acceptable “excused” absences.
- Students are responsible for all course-related assignments, including quizzes, homework, and lectures whether in attendance or not.
- While it is the responsibility of the student to arrange for make-up work for excused absences, **Students WILL NOT be permitted to make up an exam or a lab unless permission is granted by the instructor prior to the scheduled event.**
- A grade of zero will be given for work not made up, late, and for work missed due to unexcused absences

Academic Integrity
The College’s Academic Integrity Policy (AIP, Westminster College Undergraduate Catalog, p. 71) will be strongly enforced. Academic dishonesty can take several forms, including, but not limited to, plagiarism, cheating, misrepresentation of facts, purposely altering the work of another (without that person’s permission) or engaging in any activity which attempts to alter or harm another’s academic standing. **Academic dishonesty in**
any of these forms will not be tolerated and will be reported to the Dean of the College. Students who engage in academic dishonesty face strict penalties, resulting in failure of a specific exam or assignments and/or failure of the course.

Grading Criteria

A ≥ 93%
93% > A- ≥ 90%
90% > B+ ≥ 87%
87% > B ≥ 83%
83% > B- ≥ 80%
80% > C+ ≥ 77%
77% > C ≥ 73%
73% > C- ≥ 70%
70% > D ≥ 60%
F ≤ 60%

Methods of Instruction:
Classes will consist of a variety of activities to enhance the learning process. Demonstrations, group work, laboratories, discussions, videos, guest speakers, cases studies, and lecture will be incorporated throughout the semester.

- **Lectures and Discussion** - all lectures and discussions will follow a tentative schedule (see attached) in order to ensure adequate emphasis to all meaningful themes, topics, and concepts related to the field of forensic investigation. I expect you to attend class, pay attention, and participate “actively” in discussion by answering questions, asking questions, and making appropriate comments. You will get more out of the lecture and discussion if you have read the material in the textbook ahead of time.

- **Readings and Assignments** - readings will enhance the lecture and provide excellent material for class discussion. Additional reading materials will be assigned as we progress. READING SHOULD BE TAKEN SERIOUS! (Quiz Alert!) Specific assignments/projects, and their due dates, will be addressed as the course progresses.

- **Laboratories and Demonstrations** - laboratory activities and demonstrations will serve as indispensable elements of this course. In some cases, laboratory exercises will parallel class discussions and lecture, to increase understanding of specific topics and to provide alternative insight. In many cases, however, labs and/or demonstrations will be used to introduce and clarify topics that we may not have sufficient time to cover. Remember, laboratory attendance is mandatory! Safety goggles and appropriate clothing are REQUIRED for all experiments.

- **Final Crime Scene Investigation** - The culminating lab, “The Crime Scene,” is a three-week lab in which students investigate a mock crime scene as would be done by a real-world forensic team. This lab includes “working the scene,” collecting and processing the evidence, analyzing evidence, and submitting a report of the results.
Tentative Schedule (Subject to Change)

Tuesday, January 16, 2018  Lecture: The CSI Effect and Eyewitness Reliability: The Need for Forensic Science/ Article Discussion *(First Class)*

Thursday, January 18, 2018  Lecture: Eyewitness Reliability Continued/ Video Presentation/ Discussion Lab Safety Presentation

Tuesday, January 23, 2017  Lecture: History/Development of Forensic Science: Services of the Crime Laboratory; Law Background and Crime Defined (Chapter 1)

Thursday, January 25, 2018  Lecture: History/Development of Forensic Science: Services of the Crime Laboratory; Law Background and Crime Defined (Chapter 1)

Tuesday, January 30, 2018  Lecture: Forensic Pathology/ Anthropology; Video Presentation/Discussion- *Death Investigation* (Frontline)

Thursday, February 1, 2018  Laboratory: *Forensic Anthropology- Examination of Skeletal Remains*

Tuesday, February 6, 2018  Lecture: Collection and Preservation of Fingerprints (Chapter 16)

Thursday, February 8, 2018  Laboratory: *Fingerprint Analysis: Latent and Patent Print Development*

Tuesday, February 13, 2018  Lecture: Forensic Serology and Blood Spatter Analysis (Chapter 10)

Thursday, February 15, 2018  Laboratory: *Blood Typing, Presumptive Tests for Blood, and Blood Spatter Analysis*

Tuesday, February 20, 2018  Laboratory: Drug Recognition (Chapter 8-9): *Salicylates in Blood (Spectroscopy)* or *Determination of Iron in Water (TBA)*

Thursday, February 22, 2018  Lecture: The Collection and Preservation of Biological Evidence for DNA Analysis (Chapter 11)

Tuesday, February 27, 2018  Laboratory: *DNA Fingerprinting- Who Done It? Part I (PCR)* *(Midterm Review)*

Thursday, March 1, 2018  Midterm Exam

Tuesday, March 6, 2018  Spring Break *(No Class)*

Thursday, March 8, 2018  Spring Break *(No Class)*

Tuesday, March 13, 2018  Laboratory: *DNA Fingerprinting- Who Done It? Part II (Electrophoresis)*

Thursday, March 15, 2018  Laboratory: Drug Recognition (Chapter 8-9): *Unknown Powder (TLC)*

Tuesday, March 20, 2018  Laboratory: *The Salt Cellar Mystery: Flame Testing (Cation and Anion Testing)*

Thursday, March 22, 2018  Laboratory: *Chemistry and Toxicology (Drug and Alcohol Testing)*

Tuesday, March 27, 2018  Laboratory: Organic Analysis: *Ashes to Ashes- Using Evaporation Rate to Determine Unknown Liquid*; Forensic Toxicology (Chapter 9): *Case of the Drunk Driver (GC-MS)*

Thursday, March 29, 2018  Easter Break *(No Class)*

Tuesday, April 3, 2018  Classes Resume- Monday Classes Meet *(No Class)*

Thursday, April 5, 2018  Laboratory: *The Qualitative GC Detection of a Controlled Substance on Currency*

Tuesday, April 10, 2018  Laboratory: *Who Wrote the Ransom Note: Separation of Ink Dyes Using Paper and Thin Layer Chromatography*
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday, April 12, 2018</td>
<td>Laboratory: <strong>Discrimination of Ballpoint Pen Inks Using Spectroscopy Methods</strong></td>
</tr>
<tr>
<td>Tuesday, April 17, 2018</td>
<td>Laboratory: <strong>Physical Properties- Glass (Density and Refractive Index); Physical Properties- Soil Analysis (Physical Observation, pH, Density Profile, and Settling Rate)</strong></td>
</tr>
<tr>
<td>Thursday, April 19, 2018</td>
<td>Laboratory: <strong>Physical Properties- Glass (Density and Refractive Index); Physical Properties- Soil Analysis (Physical Observation, pH, Density Profile, and Settling Rate)</strong></td>
</tr>
<tr>
<td>Tuesday, April 24, 2018</td>
<td>Lecture: The Crime Scene-Collection and Analysis of Physical Evidence: Processing the Crime Scene (Photography, Documentation, and Reconstruction) (Chapter 2-3); (Video- PSU Crime Scene University- How to Process Crime Scene); Review</td>
</tr>
<tr>
<td>Thursday, April 26, 2018</td>
<td>Final Crime Scene Project (Crime Scene Processing) <strong>Scheduled Time (TBA)</strong></td>
</tr>
<tr>
<td>Tuesday, May 1, 2018</td>
<td>Final Crime Scene Project (Experimental Tests)</td>
</tr>
<tr>
<td>Thursday, May 3, 2018</td>
<td>Final Crime Scene Project (Experimental Tests) (Last Class)</td>
</tr>
<tr>
<td><strong>Final period (May 7-10)</strong></td>
<td>Final Crime Scene Project and Report Due (TBA)</td>
</tr>
</tbody>
</table>