

CHEM 1037 Studies in Forensic Science MW9 MW 9:00 AM – 10:45 AM @ IH1141

Fall 2023

Instructor Information

Jayson Vedad
Ingersoll Hall 5313
Jayson.Vedad@brooklyn.cuny.edu
(718)951-5000 ext. 2820

Office Hours (in-person or via Zoom)

Mondays 11:00 AM – 12:00 Noon
Tuesdays 11:00 AM – 12:00 Noon
Wednesdays 11:00 AM – 12:00 Noon
Also, by appointment.

Course Description and Learning Objectives

This course is an introduction to Forensic Science including modern techniques of Forensic Analysis, collection and preservation of physical evidence at crime scenes and review of authentic criminal cases. This course aims to:

- Understand the nature of both legal and scientific evidence and how each are evaluated.
- Understand the relationship between science and law.
- Understand how physical science is used to answer specific questions of importance to legal proceedings (i.e. how DNA evidence is used to identify individuals)
- Understand the legal and ethical principles that guide the collection, analysis and dissemination of evidence.

Required Text and Other Course Materials

(1) Saferstein, R., *Criminalistics: An Introduction to Forensic Science*, 12th Edition, Pearson Education, Boston, 2018.

(2) Other materials, videos posted in our Blackboard page.

Course Expectations

Attendance is required to receive a grade. Course materials will be distributed in-class or via Blackboard. Class participation is of utmost importance for this class. Lecture discussions will involve student conversations where students will be asked to comment and give opinions on a certain topic at hand. Students are expected to regularly access the course Blackboard page for additional assigned course materials, assignments and announcements. Students are expected to take notes, ask questions and submit required assignments on time. Students are also expected to arrive on time. For each instance that a student is late, the student's class participation grade is reduced by one point.

Grading

Your performance in the class will be assessed based on the following breakdown:

Quizzes and Assignments	20%
Midterm exam	30%
Final Exam	30%
Class Participation	10%
Crime Review	10%

Academic Integrity

The Faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitute cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College policy procedure for policy implementation can be found at www.brooklyn.edu/policies. If a faculty member suspects a violation of academic integrity and upon investigation, confirms that violation, or if the student admits to the violation, the faculty member must report the violation. Students must be aware that faculty may use plagiarism detection software.

Student Disability

The Center for Student Disability Services (CSDS) is committed to ensuring students with disabilities enjoy an equal opportunity to participate at Brooklyn College. In order to receive disability-related academic accommodations, students must first be registered with the CSDS. Students who have a documented disability or suspect that they may have a disability are invited to schedule an interview by calling (718)951-5538 or emailing Josephine.Patterson@brooklyn.cuny.edu. If you are already registered with CSDS, email Josephine.Patterson@brooklyn.cuny.edu or testingcsds@brooklyn.cuny.edu to ensure accommodation emails are sent to you professors.

Bereavement Student Policy

Students who experience the death of an immediate family member must contact the Division of Student Affairs, 2113 Boylan Hall, (718)951-5253, studentaffairs@brooklyn.cuny.edu. Student Affairs will contact the faculty member and advice on accommodation that will be extended to the students in bereavement.

Non-attendance due to Religious Beliefs

Students who is unable to attend class or participate in examinations due to religious beliefs are asked to consult the college policy on non-attendance due to religious beliefs on page 66 of the Brooklyn College Undergraduate Bulletin 2023-2024.

Diversity Statement

Everyone is welcome to this course. We all strive to overcome biases and make a space in which all students feel included, encouraged, and respected. We hope to foster a learning community that honors the identities of all students (including race, gender, class, sexuality, religion, ability, etc.). We hope that we can create an environment in which all students from all backgrounds and perspectives are well-served by this course and in their Brooklyn College experience. *Behavior (i.e. racist, sexist, homophobic, etc.) that demeans the identity of any student or faculty will not be tolerated.*

Topic Outline

1. History and Development of Forensic Science (Chapter 1)
 - a. The Scientific Method
 - b. Organization of a Crime Lab
 - c. Services of a Crime Lab
2. The Crime Scene (Chapters 2 and 3)
 - a. Processing a Crime Scene
 - b. Legal Issues at the Crime Scene

- c. The Role of the First Officer
 - d. The Role of the Lead Detective and the Team of Experts
 - e. Types of Physical Evidence
 - f. Collection and Processing of Physical Evidence
- 3. Brief Introduction to Chemistry (Chapter 10)
 - a. Nature of Matter and Energy
 - b. Atoms, Elements, Molecules and Compounds
 - c. Energy and its Reaction with Matter
 - d. The Electromagnetic Spectrum
- 4. Introduction to Chemical Spectroscopy (Chapter 12)
 - a. Chromatography
 - b. Spectroscopy
 - c. Mass Spectrometry
- 5. Forensic Serology (Chapters 4 and 15)
 - a. The Nature of Blood
 - b. Forensic Characteristic of Bloodstains
 - c. Blood Types and the Principle of Heredity
- 6. DNA (Chapter 16)
 - a. Biochemistry of the DNA
 - b. Mitosis and Meiosis
 - c. DNA Replication in the Lab
 - d. Gel Electrophoresis
 - e. The CODIS Database
- 7. Drugs and Alcohol (Chapters 12 and 13)
 - a. What is Drug?
 - b. Drug Classification
 - c. Federal Penalties
 - d. Drug collection in a Crime Scene
 - e. Chemical Analysis of Drugs
 - f. Alcohol and the Human Body
 - g. The Field Sobriety Test
 - h. Drugs and Society
- 8. Hair, Fiber, Glass and Paint (Chapter 11)
 - a. Morphology of Hair
 - b. Identification of Hair
 - c. Types of Fibers
 - d. Chemical Analysis of Paints
 - e. Analysis of Glass
- 9. Forensics of Arson and Explosives (Chapter 17)
 - a. Chemistry of Fire
 - b. Analysis of Fire Residues
 - c. Explosions and Explosives
- 10. Fingerprinting (Chapter 6)
 - a. History of Fingerprints
 - b. Friction Ridges
 - c. Collection and Preservation of Prints
 - d. Chemistry of Fingerprinting
 - e. Examination of Prints in Identification of Individuals

Important Dates

August 25	Friday	First day of class for Fall 2023
August 31	Thursday	Last day to add a course
September 4	Monday	College is closed
September 25	Monday	No classes scheduled
October 9	Monday	College is closed
October 10	Tuesday	Conversion day (Monday Schedule)
December 11	Monday	Last day to withdraw from a course with a grade of W
December 12	Tuesday	Reading day
December 13	Wednesday	Reading day
December 14	Thursday	Final exam starts
December 20	Wednesday	Final exam ends