Fall 2024

FRSC 359-003: Intro to Forensic Science

Kevin Parmelee

NJIT New Jersey Institute of Technology

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE

FRSC 359-003: Physical Methods of Forensics

T 8:30-12:05p (TIER 209)
W 12:15-2:20p (CULM LECT 1)
Fall 2024 Course Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Chemistry & Environmental Science (CES) takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: This course is designed to prepare undergraduate students in the forensic science program for impression, pattern, and trace evidence analysis. This course provides the theory, knowledge, and skills that are essential to success in forensic science coursework and the profession. Criminalistics is the branch of forensic science that involves the recognition and identification, or classification, individualization, and reconstruction of physical evidence. The knowledge, skills and abilities that were learned in FRSC 201: Introduction to Forensic Science and FRSC 307: Crime Scene Investigation & Lab will be further developed and honed. The purpose of this course is to gain in-depth understanding of non-biological evidence utilizing physical methods. Students in this course will learn the principles of criminalistics, proper evaluation and comparison of impression evidence in the analysis of unknown materials. There will be an emphasis on the necessity of an objective and rigorous scientific approach to forensic investigations. This course will contain components of proper packaging; class and individual characteristics; principles of criminalists/forensic science; laboratory accreditation guidelines and procedures, ethics; and performing physical comparisons.

Number of Credits: 4

Prerequisites: FRSC 201; FRSC 307 (may be taken as a co-requisite)

Course-Section and Instructor

Course-Section	Instructor
FRSC 359-003	Dr. Kevin Parmelee
T 8:30-12:05pm (TIER 209)	Email: parmelee@njit.edu

W 12:15-2:20pm (CULM LECT 1)	Office Hours: By Appt. C: 908-420-1102

Required Textbooks:

Title	Forensic Science Laboratory Manual and Workbook
Author	Thomas Kubic & Nicholas Petraco
Edition	3rd
Publisher	CRC Press
ISBN #	978-1-4200-8719-2

and

Title	Color Atlas of Forensic Toolmark Identification
Author	Nicholas Petraco
Publisher	CRC Press
ISBN #	978-1-4200-4392-1

and other readings as assigned.

University-wide Withdrawal Date: The last day to withdraw with a **W** is Monday, November 11, 2024. It will be strictly enforced.

Learning Outcomes: Upon completion of this course, students will:

- Classify the nature and origin of physical evidence
- Capture and preserve the physical evidence record by performing observation and accurately documenting the record
- Describe impression/pattern evidence origins and perform evidence evaluations and comparisons
- Summarize ISO 17025 and accrediting body accreditation guidelines and how they integrate with laboratory policy and procedures
- Interpret and analyze pattern/impression evidence using mathematical calculations and physics.
- Communicate the results of analysis, examinations, and interpretations in written reports according to accreditation standards that are relevant to the investigator and attorney.
- Describe the importance of chain of custody, and appropriate packaging of evidence to maintain evidence integrity
- Summarize differences between identifying, class, and individualizing characteristics
- Explain the process of and perform physical comparisons
- Capture observations accurately in documentation

POLICIES

All CES students must familiarize themselves with, and adhere to, all official university-wide student policies. CES takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Lab safety and cleanliness	10%
Class Participation	10%
Lab exercises	30%
Midterm Exam	20%
Final Exam	30%

Extra Credit will be given for attending NEAFS Conf.	1% per full day

Late assignments: Lab Assignment deliverables are due no later than Saturday 11:59pm of the week it was assigned. Late submissions will be deducted 25% (from the 100% max) for each day late, commencing at 00:00hrs following the due day, and each subsequent day until the potential score is zero.

Your final letter grade in this course will be based on the following grading scale:

A	90-100	**C**	70-76
B+	87-89	**D**	60-69
B	80-86	**F**	<60
C+	77-79		

Attendance Policy: Attendance at classes will be recorded and is **mandatory**. Each class is a learning experience that cannot be replicated through simply "getting the notes." After two unexcused absences, each subsequent absence will result in your class participation score being lowered by one percentage point. You are expected to read the relevant chapter and/or reading assignment prior to the lecture. Students who participate in lecture will receive points towards their class participation grade.

Exams: There will be one midterm exam held in class during the semester and one comprehensive final exam. The following exam periods are tentative and therefore possibly subject to change:

Midterm Exam	Oct 30
Final Exam Period	Dec 15-21, 2024

The final exam will test your knowledge of all the course material taught in the entire course.

Makeup Exam Policy: There will normally be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event that a student has a legitimate reason for missing a quiz or exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the CES Department Office/Instructor that the exam will be missed so that appropriate steps can be taken to make up the grade.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times. Such devices must be turned in during exams.

ADDITIONAL RESOURCES

Accommodation of Disabilities: Office of Accessibility Resources and Services (***formerly known as Disability Support Services***) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director at the Office of Accessibility Resources and Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Office of Accessibility Resources Services office authorizing your accommodations will be required.

For further information regarding self-identification, the submission of medical documentation and additional support services provided please visit the Accessibility Resources and Services (OARS) website at:

- https://www.njit.edu/accessibility/

Important Dates:

Date	Day	Event
Sept 3		First Day of Classes
Sept 9		Last Day to Add/Drop Classes
Nov 11		Last Day to Withdraw
Nov 20		Last class before Thanksgiving
Nov 28		Thanksgiving break begins
Dec 1		Thanksgiving break ends
Dec 11		Last Day of Classes
Dec 12-13		Reading Days
Dec 15-21		Final Exam Period

Course Outline

Week	Date	Topic	Assignment
1	(Wed) Sep 4	Intro to Criminalistics; Lab Accreditation; ISO 17025	Review syllabus; buy textbooks
		Lab Check In; Makerspace Make 101, CSIPix, Faro	Sign lab safety contract; buy PPE
2	Sep 10	Scientific Measurement & Error-Lecture	Lab 1 Handout, Ch 3
	Sep 11	Forgery Detection-Lecture	
3	Sep 17	Forgery Detection	Lab 2
	Sep 18	Acquiring and Classifying Fingerprints-Lecture	Obtain CSIPix, chap 4&5 SourceBook
4	Sep 24	Acquiring and Classifying Fingerprints	Lab 3, CSIPix uploading
	Sep 25	Ident and Matching of Fingerprints / ACE-V-Lecture	CSIPix annotating, chap 6&9 SourceB
5	Oct 1	Identification and Matching of Fingerprints / ACE-V	Lab 4, CSIPix and Court Charting

	Oct 2	Acquiring and Classifying Footwear-lecture	CSIPix uploading
6	Oct 8	Identification and Matching Footwear	Lab 5, CSIPix annotating & Charts
	Oct 9	Soil-Lecture	Handout
7	Oct 15	Soil Examination	Lab 6
	Oct 16	Toolmarks/Firearms-Lecture	Ch 5
8	Oct 22	NEAFS Meeting (Atlantic City, NJ) Class will meet virtually	
	Oct 23	NEAFS Meeting (Atlantic City, NJ) Class will meet virtually	
9	Oct 29	Toolmarks/Firearms-Lecture	Lab 7
	Oct 30	Midterm Exam	
10	Nov 5	Serial Number Restoring Lecture & Lab	Handout Lab 8
	Nov 6	Bloodstain Pattern Analysis -Lecture	Faro review
11	Nov 12	Bloodstain Pattern Analysis	Lab 9 Faro capture& Process
	Nov 13	Forensic Odontology/Anthropology-Lecture	Handout
12	Nov 19	Bite Mark or Skeleton Lab	Lab 10
	Nov 20	Forensic Pathology, Entomology -Lecture	
13	Nov 26	Forensic Pathology, Entomology	Lab 11
	Nov 27	(Friday's Schedule no classes)	Faro review
14	Dec 3	Shooting Reconstruction & Technology	Lab 12, Faro capture& Process
	Dec 4	Courtroom Testimony-Lecture	
15	Dec 10	Courtroom Testimony	
	Dec 11	Last day of class; Review for Final	Study for final
	TBD	Final Exam	

Commented [kp1]: Thanksgiving