O.P. Jindal Global University

A Private University Promoting Public Service

COURSE TITLE – Scientific Investigation of Crime

Course Instructor -Dr. Girraj Sharma

Jindal Institute of Behavioral Sciences (JIBS)

04 Credit Course

FALL SEMESTER 2025

Faculty Contact: Dr. Girraj Sharma
Email: Girraj.sharma@jgu.edu.in
Office Hours:
Classroom:
The information provided herein is from the Course Coordinator. The following information contains the official record of the details of the course.

PART I

Course Title: Scientific Investigation of Crime		
Course Code		
Course Duration	Semester	
No. of Credit Units	04	
Level	UG/PG	
Pre-Requisites	Nil	
Pre-Cursors	Nil	
Equivalent Courses	Nil	
Exclusive Courses	Nil	
Class Timing		

PART II

Course Description:

The Scientific Investigation of Crime course provides students with a comprehensive course designed to equip students with the knowledge and skills necessary to analyze and solve crimes through scientific methods. This course covers a wide range of topics, including crime scene investigation, physical evidence handling, and the application of various forensic disciplines such as forensic biology, forensic chemistry, forensic toxicology, digital forensic and forensic physics. Students will also explore cutting-edge techniques in crime scene investigation, DNA analysis, toxicology, ballistics, and digital forensics. Emphasis will be placed on the integration of scientific principles with investigative procedures to ensure accurate and reliable results. Through case studies and hands-on laboratory exercises, learners will develop critical thinking skills and learn to apply scientific reasoning to real-world criminal investigations.
The course also addresses the ethical considerations and legal frameworks governing forensic practices, preparing students to navigate the complexities of the criminal justice system. Ideal for those aspiring to careers in forensic science, criminal justice, or law enforcement, this course provides a solid foundation in the scientific approaches that are pivotal in solving crimes and delivering justice

Course Aims:

The aim of the *Scientific Investigation of Crime* course is to equip students with a thorough understanding of the scientific methodologies and forensic techniques used in the investigation and analysis of criminal activities. By integrating theoretical knowledge with practical applications.

Course Intended Learning Outcomes

Upon successful completion of the *Scientific Investigation of Crime* course, students will be able to:

1. Understand crime scene management
2. Know physical evidence and their role in crime investigation
3. Apply scientific techniques in the investigation
4. Do Interpretation of forensic data

Assessment Process:

The course will be majorly taught using class discussions, anecdotes, presentations, readings, and experiential exercises. The evaluations will include in-class activities, individual and group presentations, written assignments, quizzes, and projects.

Percentage breakdown of Grade:

70% Internal Exam (Divide into 3-4components)
15% for Projects *
10% Quiz*
10% for Presentations*(end semester)
15% for Classroom / Home assignments (Subject to change according to choice of Instructor)

30% End Semester Exam (Closed book and timed)

(*Please note that absenteeism on day of assessment will not be entertained and no assessments shall be rescheduled.)

Grading of Student Assessment

Letter Grade	Percentage of Marks	Grade Points	Interpretation
O	80 and above	8	**Outstanding:** Exceptional knowledge of the subject matter, thorough understanding of issues; ability to synthesize ideas, rules and principles and extraordinary critical and analytical ability.

A+	75 - 79	7.5	**Excellent:** Sound knowledge of the subject matter, thorough understanding of issues; ability to synthesize ideas, rules and principles and critical and analytical ability.
A	70 - 74	7	**Very Good:** Sound knowledge of the subject matter, excellent organizational capacity, ability to synthesize ideas, rules and principles, critically analyse existing material and originality in thinking and presentation.
A-	65 -69	6	**Good:** Good understanding of the subject matter, ability to identify issues and provide balanced solutions to problems and good critical and analytical skills.
B+	60 - 64	5	**Fair:** Average understanding of the subject matter, limited ability to identify issues and provide solutions to problems and reasonable critical and analytical skills.
B	55 - 59	4	**Acceptable:** Adequate knowledge of the subject matter to go to the next level of the study and reasonable critical and analytical skills.
B-	50 - 54	3	**Marginal:** Limited knowledge of the subject matter and irrelevant use of materials, and poor critical and analytical skills.
P1	45 - 49	2	**Pass 1:** Pass with Basic understanding of the subject matter.
P2	40 - 44	1	**Pass 2:** Pass with Rudimentary understanding of the subject matter.
F	Below 40	0	**Fail:** Poor comprehension of the subject matter; poor critical and analytical skills and marginal use of the relevant materials. Will require repeating the course.

Course Outline

Unit I: Basics of Crime Scene - (Week 1-2)

Introduction, forensic science, forensic science examinations, definition of crime scene, different classification of crime scenes such as primary and secondary, macroscopic, microscopic, indoor, outdoor, mobile crime scene etc., determination of location of unknown scene of crime, role of crime scene in criminal investigations, physical evidence at crime scene, scientific crime scene investigation, case studies.

Essential Readings

1. Lee, H., Palmbach, T., & Miller, M. T. (2001). Henry Lee's crime scene handbook.
2. Saferstein, R., & Tiffany, R., (2021). Criminalistics – An Introduction to Forensic Science. Pearson.

Suggested Readings:
1. Tilstone, W. J., Hastrup, M. L., & Hald, C. (2019). Fisher's Techniques of Crime Scene Investigation
2. Sharma, B.R., (2003). Forensic Science in Criminal Investigation and Trials. Universal Law House, India.

Unit II: Scientific processing of scene of crime (Week 3-5)
Elements of crime scene management i.e. information, technology, logistics and manpower management, role of the first responding officer, how to proceed crime scene.

Essential Readings
1. Lee, H., Palmbach, T., & Miller, M. T. (2001). Henry Lee's crime scene handbook.
2. Saferstein, R., & Tiffany, R., (2021). Criminalistics – An Introduction to Forensic Science. Pearson.

Suggested Readings:
1. Tilstone, W. J., Hastrup, M. L., & Hald, C. (2019). Fisher's Techniques of Crime Scene Investigation
2. Sharma, B.R., (2003). Forensic Science in Criminal Investigation and Trials. Universal Law House, India.

Unit III: Investigation of Death (Week 3-5)
Introduction and definition of death, role of forensic pathologist, examination of dead body at scene of crime, post-mortem examination, evidence from autopsy, cause of death, manner of death, postmortem changes or estimating time of death, case studies.

Essential Readings
1. Lee, H., Palmbach, T., & Miller, M. T. (2001). Henry Lee's crime scene handbook.
2. Saferstein, R., & Tiffany, R., (2021). Criminalistics – An Introduction to Forensic Science. Pearson.

Suggested Readings:
1. Tilstone, W. J., Hastrup, M. L., & Hald, C. (2019). Fisher's Techniques of Crime Scene Investigation
2. Sharma, B.R., (2003). Forensic Science in Criminal Investigation and Trials. Universal Law House, India.

Unit IV: Cases of Scientific Investigation (Week 6-7)

Role of forensic anthropologist, recovering and processing remains, determining victim characteristics, other contributions of forensic anthropology, role of forensic entomologist, other contributions of forensic entomologists, antemortem drowning and postmortem drowning cases, antemortem hanging and postmortem hanging cases, case studies.

Essential Readings

1. Lee, H., Palmbach, T., & Miller, M. T. (2001). Henry Lee's crime scene handbook.
2. Saferstein, R., & Tiffany, R., (2021). Criminalistics – An Introduction to Forensic Science. Pearson.

Suggested Readings:

1. Tilstone, W. J., Hastrup, M. L., & Hald, C. (2019). Fisher's Techniques of Crime Scene Investigation
2. Sharma, B.R., (2003). Forensic Science in Criminal Investigation and Trials. Universal Law House, India.

Unit V: DNA the Indispensable Forensic Science Tool (Week 10-15)

Introduction and definition of DNA, Structure of DNA, DNA at work, Replication of DNA, DNA typing with short tandem repeats, mitochondrial DNA, Collection and preservation of biological evidence for DNA analysis, case studies.

Essential Readings

1. Lee, H., Palmbach, T., & Miller, M. T. (2001). Henry Lee's crime scene handbook.
2. Saferstein, R., & Tiffany, R., (2021). Criminalistics – An Introduction to Forensic Science. Pearson.

Suggested Readings:

1. Tilstone, W. J., Hastrup, M. L., & Hald, C. (2019). Fisher's Techniques of Crime Scene Investigation
2. Sharma, B.R., (2003). Forensic Science in Criminal Investigation and Trials. Universal Law House, India.

Professional Conduct in Classroom

You are expected to arrive on time in the classroom and follow the classroom decorum. It is expected that you will be punctual in class and be seated immediately within the first two minutes so that the class can start on time. Students arriving after a ten-minute window from the designated start time will be refused entry/attendance. You are expected to participate in the classroom discussions, activities and presentation. Participation is essential in this class. You are also expected to be respectful when the instructor is teaching. Furthermore, you are welcome to share your thoughts in the class, but you are expected to do that respectfully and be welcoming of other perspectives in the class even if you disagree with the same.

Notes on Plagiarism

Plagiarism is not acceptable! Please refrain from copying and pasting paragraphs and sentences from your reading materials. This includes copying someone's words, structure, grammar, ideas, thoughts, and phrases and passing them as your own. Too many quotes are not acceptable!

What is acceptable? Using one quote which is not more than 40 words with proper citation. Use citation! It's a must! Present the content you read from your reading materials in your own words! Think and critically analyze the content! The source should be always acknowledged in your written material and presentation. All papers in this class will be checked electronically for plagiarism.

Attendance Policy

Students are expected to attend all classes (100% attendance). A student who fails to attend a class is expected to inform the Course Instructor, orally or in writing, of the reason for his or her absence. A minimum of 75% attendance is mandatory, failing which, student is not permitted to take the final exam or end term exam.

Safe Space Pledge

Some parts of this course may discuss a range of issues that might result in distress for some students. Discussions and images in the course might also provoke strong emotional responses. To make sure that all students benefit from the course, and do not feel troubled due to either the contents of the course, or the conduct of the discussions, it is incumbent upon all within the classroom to pledge to maintain respect towards our peers. This does not mean that you need to feel restrained about what you feel and what you want to say. Conversely, this is about creating a safe space where everyone can speak and learn without inhibition and fear. This responsibility lies not only to students, but also to the instructor.

Disability Support and Accommodation Requirements

JGU endeavors to make all its courses accessible to students. All students with a known disability needing academic accommodations are required to register with the Disability Support Committee dsc@jgu.edu.in. The Committee has so far identified the following conditions that could possibly hinder student's overall well-being. These include: physical and mobility related difficulties; visual impairment; hearing impairment; medical conditions; specific learning difficulties e.g. dyslexia; mental health.

The Disability Support Committee maintains strict confidentiality in its discussions. The students should preferably register with the Committee in the first week of the semester as disability accommodation requires early planning. DSC will approve and coordinate all the disability related services such as appointment of academic mentors, specialized interventions and course related requirements such as accessible classrooms for lectures, tutorials and examinations.

All faculty members are required to refer students with any of the above-mentioned conditions to the Disability Support Committee for addressing disability-related accommodation requirements.

Centre for Wellness and Counseling Services:

Contact: Email ID: cwcs@jgu.edu.in
Mobile: +91 8396907312