

# **FRNSC 100**

## **Introduction to Forensic Science**

### **Sample Syllabus**

### **Description**

Forensic science is the application of scientific principles and practices to matters of the law.

This course introduces students to the field of forensic science and criminalist with focus on the collection, examination, evaluation, and interpretation of evidence. Following a single case over the semester, the course will review the basic applications of selected forensic science disciplines and will explore the underlying scientific principals and methods used within each. The capabilities and limitations of the forensic sciences will be illustrated, as well as the ways in which science contributes to the resolution of social and legal disputes.

### **Objectives**

Upon completion of this course, students will be able to:

- Describe crime scene procedures and technologies used to reveal, collect, process, and transport crime scene evidence.
- Identify the role of the criminalist within the broad scope of forensic science and science in general.
- Describe the forensic roles that scientists from the fields outside of criminalistics play in the investigation and criminal justice process.
- Explain categories of evidence (direct, circumstantial, testimonial), their limitations, and value in a criminal investigation.
- Describe the necessity of photography in all stages of the forensic science process, from crime scene to court room, and its dual purpose as both evidence and documentation in case work.
- Compare the generalist versus specialist philosophies of forensic science, and explain how each informs the way forensic science is approached.

- Explain how to identify and scientifically examine different types of physical evidence, such as glass, soil, hairs, fibers, paint, controlled substances or drugs, blood, DNA, etc.
- Describe identification, enhancement, collection, and analysis techniques for impression and pattern evidence.
- List characteristics of handwriting and document analysis.
- Recall historical developments and landmarks of forensic science.
- Illustrate critical thinking by obtaining results and collecting facts, and then drawing conclusions from those results and making decisions based on the facts presented.
- Demonstrate knowledge of the underlying scientific principles for analyses performed and instruments used in forensic science and the science lab.
- Demonstrate quantitative literacy by solving numerical problems and performing numerical manipulations, and interpreting tabulated, graphical, and/or statistical data.
- Identify the limitations of forensic science in what it can and cannot prove.
- Describe the differences between presumptive and confirmatory testing, and demonstrate knowledge of the appropriate application of each to evidence.
- Relate forensic science principles and technological advances to real-world applications.
- Explain the importance of ethics in science.
- Summarize how the legal field influences forensic science and vice-versa.
- Describe the role of forensic science in the criminal justice system, as well as its role in society at large.

## Materials

- Houde, J. N. (2006). Crime Lab: A Guide for Nonscientists (Second ed.).
- Rollingbay, WA: Calico Press, LLC. ISBN: 978-0965828666

It is HIGHLY recommended that you purchase the e-book. You can buy it on amazon.com. You do not need a kindle to read the book - just download the free kindle app onto your computer or device.

The Kindle version costs approx. \$6 USD and can be purchased on [Amazon](#) .

If you choose to buy the paper book instead of the e-book, no dude date extensions will be granted for late work because your book has not arrived yet. The paper book costs about \$30 USD, so it is remarkably more expensive than the e-book. If you still decide to purchase the physical copy, make sure you purchase the second edition and not the first. They are not the same. All online instructor provided reading and activities on the Canvas website, unless specifically stated to the contrary, are testable materials.

## Course Schedule

Week	Topic(s)
1	What is forensic science; crime scene investigation – scene management and approach
2	Crime scene investigation – processing the scene, evidence collection methods
3	Crime scene investigation – packaging and transport of evidence
4	Forensic biology/serology; collecting evidence samples from victims/suspects[]
5	Evidence intake and initial examination at crime lab
6	Lab instrumentation
7	Trace evidence
8	Blood
9	DNA
10	Drug chemistry and toxicology
11	Impression evidence; tool marks and firearms
12	The courtroom, ethics, and credibility
13	Reconstruction and drawing conclusions from results

14	Reconstruction and critical thinking
15	Forensic science in the “real world;” social/legal impacts

## Reading

Each module contains assigned reading. Some of the reading is from your textbook and some will be from online articles, websites, or content provided by the instructor on the course content website. All material from the reading is testable unless otherwise indicated.

If you have a paper book, the page numbers are listed. If you are using an e-book (recommended), the page numbers may differ from the physical paper book. In that case, the chapter titles and/or headings are given to provide you with starting and stopping points.

## Online Labs or Activities

Online labs or other activities help emphasize important points from your reading, or help expand your understanding of the science being used to examine evidence. Most of this content is hosted on third-party websites that we do not control. If the content on one of these websites becomes unavailable or you have trouble accessing it, email the instructor immediately for assistance. We will help you troubleshoot as best we can. If you choose to skip the activity and move on to the quiz without seeking assistance, and are unable to answer quiz questions because of it, points will not be given back. You **MUST** contact one of us to troubleshoot before "giving up and moving on" if you cannot access a site in order for points to be granted for missed questions.

If you do not already have a YouTube account, you may need to create one to watch many of the videos.

The content of these labs and activities is testable material unless otherwise indicated.

## Case Notes and Written Work

In modules 1-11 you will have homework assignments in the form of case notes. While each module's case notes covers a different area of the

crime scene or crime lab (toxicology, DNA, drugs, etc.), they are all part of the same case and will all have the same case number – PSUCL-01.

Most of these assignments require you to fill in the provided worksheets/outlines and then submit the work for grading on Canvas. All of the case notes must be typewritten and submitted as a Microsoft Word or PDF document. If you submit your work in a format that is unreadable (bad file, .pages, html link, etc.), your work will be given a 0. If we can't read it, we can't – and won't - grade it. The same goes for anyone who uses Google Docs. If it does funny things to the document format and alters the assignment or makes it unreadable, the assignment may lose points or not be graded. YOU are responsible for making sure your work is submitted properly and legible/readable.

You will need Microsoft Word in order to complete the assignments for this class. As a Penn State student, you receive free access to Office 365 online. Every single student gets use of the Microsoft Office platforms using this app; therefore, no excuses of “But I don't have Word.” or “But I use a Mac.” will be accepted for why your work is not in the proper format. If we cannot read it, we cannot grade it.

It is important to keep up with case notes assignments throughout the semester - you will need this information to be complete and accurate to do the assignments in modules 12-14.

## **Evidence Summary Assignment**

In module 12 you will aggregate the results of the case notes that you have taken throughout the semester. Your summary will go over each piece of evidence by discussing the analyses performed on them and the results of those tests.

## **Drawing Conclusions Assignment**

In module 13, you will use the summary from module 12. Using your critical thinking skills, you will draw conclusions about the evidence in this case. Is it probative? Can it be associated with other evidence or people from the crime scene? Is your assumption about the evidence supported by science?

## **Timeline of Events (Reconstruction) Assignment**

In module 14, you will use the assignment completed in module 13 to reconstruct the timeline of events from the crime scene, as well as discuss some alternate theories of the case. Based on the conclusions you come to in module 13, your timeline may vary greatly from those of your fellow classmates. This is expected and acceptable, as long as your timeline is backed up by your scientific interpretation of the evidence.

## **Forensic Science Professional Profiles**

The majority of the textbook is dedicated to criminalistics, but there are many other sciences that can be included under the forensic science umbrella. There are ten forensic science specialties discussed throughout the course. Each of these will include short reading assignments, a possible online activity or lab, and a 5 question, 5 point quiz.

## **Forensic Science Career Assignment**

Part of exploring any profession is understanding what it takes to be a part of it. You will examine job postings for crime scene, crime lab, and forensic specialty work in order to explore what it takes to enter the forensic science field. This is also an opportunity to see how the courses you take and the skills you develop in the classroom are directly applicable to your career once you leave Penn State.

## **Forensic Science Education Assignment**

As you will see from the Career Assignment, the educational requirements for jobs in the forensic science field vary widely depending on the type of work you want to do. For the Education Assignment, you will examine different degree options in relation to the job postings you analyzed during the Career Assignment to explore the differences between these degrees and why certain degrees may be necessary for some jobs but not others.

## **Photography Assignments**

You will have five photography assignments throughout the semester. They will each cover different uses and necessities of photography throughout a case including the use of photography for crime scene investigation (CSI), documentation of victims and suspects, initial

evidence examination, documentation of evidence analysis, and finally the use of these photos as evidence or documentation in the courtroom.

## **Quizzes**

Each module has a 10 question, 10 point quiz that you will have 10 minutes to complete. The quizzes contain multiple choice and true/false questions. All material in the module - except for the professional profile - is fair game for the quiz.

Quiz questions are randomly drawn from a question bank specific to the module in which you are taking the quiz. Each bank may have up to 50 questions. The questions are pulled from the textbook reading, Canvas page reading, articles and third party website information, videos, and online labs/activities. While the quiz is open book, it is **HIGHLY RECOMMENDED** that you take some notes to use on your quiz and exams as you complete each module. Students who try to do the reading and take the quiz simultaneously generally run out of time because there is not enough time to do both.

Each professional profile has a 5 question, 5 point quiz that you will have 10 minutes to complete. The quizzes contain multiple choice and true/false questions. These quiz questions will only be on the information in the professional profile - no other content from the module will be in the 5 point quiz.

Quizzes are open book and open note - they are not open friend. Make sure your work is your own.

All quizzes will be available on Canvas. Check the calendar and module pages for due dates.

## **Case Note Quiz**

The formatting of case notes in forensic science is guided by some very strict standards and guidelines. In the world of forensic science, case notes are considered a legal document, and if they are done incorrectly, they can get thrown out of court. You will be introduced to the basics of proper case notes documentation in this class. The format you are being asked to follow is a bare bones version of what anyone entering a law enforcement or forensics profession will encounter. This is also a good

introduction to the handwritten version of case notes you will encounter in FRNSC 210 if you intend to pursue the forensic science major at Penn State.

Every semester, students needlessly lose points on their case notes assignments because they refuse to follow the format (or simply ignore the directions). This quiz is designed to make sure you understand the format that is required for case notes - especially the date and time.

## **Exams**

You will have three exams, each worth 100 points. Exams have 100 multiple choice and true/false questions. The questions are drawn from the question banks used to make the module quizzes. It is likely you will see some of the same questions on your exam that you had on a previous quiz - these will be mixed in with new questions you have not seen before.

You will have 1 hour (60 minutes) to complete each exam. While the exams are open book, it is **HIGHLY RECOMMENDED** that you take some notes to use on your exams as you complete each module. It is also **HIGHLY RECOMMENDED** that you study for this exam the same as you would any other. If you are unfamiliar with the material, you will have trouble finishing the exam on time - there is not enough time to look up every single answer in your notes or on Canvas while taking the exam.

## **Extra Credit**

The instructor will have VoiceThread or Kaltura lectures throughout the modules for you to watch. A VoiceThread or Kaltura lecture is like a PowerPoint lecture - you watch the slides while I talk over them. However, these are **NOT** traditional lectures. They will vary in length and complexity depending on the subject matter being discussed and there is not a lecture for every module. These lectures are designed to help explain concepts and assignments that students have struggled with in the past. It is worth your while to watch them with your full attention - do not do other work, watch Netflix, or engage in other distractions. Lectures are considered testable material unless otherwise stated.

## **Class Discussion on Piazza**



There are no discussion boards or group projects required in this class. That being said, students in previous classes have expressed a desire for there to be some sort of voluntary discussion forum where they can post questions or discuss assignments with fellow students. I have set up Piazza so that you can do just that. These forums will be monitored, so do not use them to cheat. Pointing a student to the correct section of the textbook to find an answer is acceptable – telling them the answer is not. This is the **ONLY** place where students are authorized to “collaborate” within this course.

## Grade Scale

Letter Grade	% of Course Grade
A	93-100%
A-	90-93%
B+	83-87%
B	83-87%
B-	80-83%
C+	77-80%
C	70-77%
D	60-70%
F	< 60%

## Late Submission Policy

Late quizzes and exams will not be accepted without prior permission from the instructor.

Very late work may be accepted on a case-by-case basis. Students with long-term or serious illnesses or experiencing catastrophic life events have been granted extensions in the past. Doctor's notes or other

documentation may be required. Again, extensions are not guaranteed, and are granted on a case-by-case basis by the instructor.

## **Academic Integrity**

Academic integrity is the pursuit of scholarly activity in an open, honest and responsible manner. Academic integrity is a basic guiding principle for all academic activity at The Pennsylvania State University, and all members of the University community are expected to act in accordance with this principle. Consistent with this expectation, the University's Code of Conduct states that all students should act with personal integrity, respect other students' dignity, rights and property, and help create and maintain an environment in which all can succeed through the fruits of their efforts.

Academic integrity includes a commitment by all members of the University community not to engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.

## **Accommodating Disabilities**

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. The [Student Disability Resources \(SDR\) website](#) provides contact information for every Penn State campus. For further information, please visit [Student Disability Resources website](#).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: [See documentation guidelines](#). If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

## **Counseling and Psychological Services**

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

- [Counseling and Psychological Services at University Park \(CAPS\)](#): 814-863-0395
- [Counseling and Psychological Services at Commonwealth Campuses](#)
- Penn State Crisis Line (Available 24 hrs, 7 days a week): 877-229-6400
- Crisis Text Line (Available 24 hrs, 7 days a week): Text LIONS to 741741

## **Educational Equity / Report Bias**

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the [Report Bias website](#).