Course Syllabus: CFJS 3450

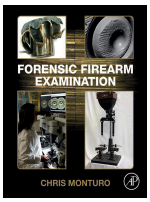
Forensic Firearm and Toolmark Examination

Fall 2022

1.0 Course Information

Location: DSC 205 **Time:** T; 8:00 – 11:00am
Credit Hours: 4 Credits **Course Prerequisite(s):** CJFS 3400

1.1 Required Texts/Items



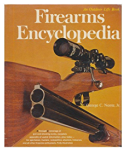
Title: Forensic Firearm Examination, 1st Ed. 2019.
Authors: Monturo.
ISBN: 9780128145395

Software: World of Guns: Gun Disassembly. Link
Note: This software is installed on a single computer in the lab you are welcome to use, make arrangements with the instructor.

Software: Sensofar Senso Comp and/or Cadre Viewer
Note: This software is free to download and details on how to acquire and run this program will be provided in class.

1.2 Optional Instructional Materials

Firearms Encyclopedia. George Nonte
Note: Book can be found second hand for about $5; highly recommended for all students.



2.0 Instructor and Contact Information

Instructor: Dr. Jamie Spaulding
Contact: 📧 jspaulding02@hamline.edu 📱 (651) 523–2237
Office: GLC 219W **Office Hours:** M, 12–2pm; R, 2:30–4pm
Note: I also maintain an open door policy, feel free to stop by my office.

3.0 Course Description

This course presents the fundamentals and advanced aspects of firearms related to evidence and the role forensic firearm and toolmark examination plays in civil and criminal cases. Topics include the design, mechanism, and manufacture of firearms; interior, exterior and terminal ballistics; confocal microscopy; properties of evidence;

admissibility of evidence and expert testimony; and interpretation and communication of results. Additionally, students will examine and compare firearm and toolmark evidence similarly to how casework is processed in the forensic crime laboratory.

3.1 Course Learning Objectives

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

1. Classify the components of ammunition types.
2. Analyze bullets and cartridge cases red by the same/different firearms using comparison microscopy.
3. Analyze the general mechanisms of firearms and how these factors influence identification.
4. Interpret the results of analyses in legal proceedings.
5. Analyze the effect of manufacturing processes on class, sub-class, and individualizing characteristics.

3.2 Assessment of Learning Objectives

Throughout the course, coursework has been intentionally designed to measure the learning objectives of the course. The following table outlines the specific assignments which evaluate student achievement of each learning objective throughout the course.

Learning Outcomes	**Specific Relevant Assessments**
1	Lab Exercise 1 & 2
2	Lab Exercise 5 - 8
3	Assignments 1 & 2
4	Assignment 3, Exams
5	Lab Exercise 5 - 8

4.0 Course Assessment

Assignment	**Points Possible**
Assignments (2 x 25 pts)	50
Firearm Mechanism Assignment	100
Lab Exercises/Reports (8 x 50 pts)	400
Midterm Exam	200
Final Exam	250
Total Points	**1000 ***
* Does not include bonus assignment(s)	

Letter Grade Distribution:

			A	93-100%	≥930	A-	90-92%	900-929
B+	87-89%	870-899	B	83-86%	630-669	B-	80-82%	800-829
C+	77-79%	770-799	C	73-76%	630-669	C-	70-72%	700-729
D	67-69%	670-699	D	63-66%	630-669	D-	60-62%	600-629
F	<60%	≤599						

5.0 Course Policies

5.1 Firearm Safety

In this course you will handle firearms, live ammunition, and propellants. When instructed, students will be required to wear provided eye/ear protection. You will only handle these materials under direct supervision of the instructor. If at any point, you are uncertain, please ask the instructor for assistance. Please review the core safety rules for firearm operation below:

1. Treat every gun as if it is loaded
   a. Even if you are certain the weapon is empty, always treat it as a loaded gun.
   b. Don't do anything with an unloaded gun that wouldn't be safe with a loaded gun.
   c. Never accept another person's word that a gun is unloaded—verify this for yourself.
2. ALWAYS keep the gun pointed in a safe direction
   a. Imagine a laser beam coming out of the barrel of your weapon. Never let that laser touch anything—even for a moment—that you aren't willing to shoot.
   b. Keep the weapon pointed in a direction that will safely stop any bullet fired.
3. Keep your finger off the trigger and outside the trigger guard until you want the gun to fire
   a. Keep your index finger extended along the frame of the weapon until your sights are on your target and you want to fire.
   b. This prevents you from unintentionally firing because you were startled or clutched something with your other hand.
4. Know your target and what's beyond it
   a. Always positively identify your target as what you intend to shoot.
   b. Be absolutely certain of what or who you are shooting.
   c. Bullets may travel through a target and strike something behind it.

5.2 Grading

All work is due at the start of class on the date indicated in the schedule listed below. Work submitted after the due date will be docked 15% initially and an additional 10% every day thereafter, weekends included. Late work will not be accepted five (5) days after the deadline. Grades will be maintained in Canvas. Students are responsible for

tracking their progress throughout the semester and notifying the instructor of any errors.
If at any point you feel that your work has not been properly graded, you may request a re-grade within one week of receiving the grade.

5.3 Attendance and Make-Up Policy

Consistent with Hamline University guidelines, students absent from regularly scheduled examinations because of authorized university activities or extenuating circumstances (major family situation, hospitalization or other serious issues, religious observance, *etc.*) will have the opportunity to take them at an alternate time. Please inform the instructor as soon as possible in such an event to arrange extensions prior to absence.

5.4 Participation

Students will be assessed on their ability to respond orally in real time to in-class questions and discussions. Students are expected to make informed and constructive contributions to the in-class discussions, and to maintain an environment that is respectful and inclusive. Differences of opinion are expected and welcome, but should be expressed in a courteous manner. Cell phones are not to be used unless instructed to do so. Talking during lectures will also reduce participation grades.

5.5 Lab Exercises & Lab Reports

A lab notebook is required to be kept by all students. This notebook may be requested by the instructor at any time to be graded, however, it will not be collected after every lab exercise. The notebook should document all activities, observations, results, and conclusions in a contemporaneous manner and assist in writing the report. Refer to the notebook guidelines for further details on the structure and requirements for the notebook.

5.6 Technology/E-Mail Policy

It is the student's responsibility to ensure that their computer is functioning and have backed up important documents. A problem with technology is not an acceptable reason for missed or late work. Important notices and corrections of errors will be sent to the Hamline email distribution list for the class to provide the fastest dissemination of the information. The instructor will make every effort to respond within one day to emailed questions or concerns.

6.0 Academic Honesty

Students in the Department of Criminal Justice and Forensic Science are held to the most stringent professional code of ethics; violations can seriously jeopardize future employment prospects. The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. While I do not expect to encounter cheating or plagiarism

this semester, it is important that you know the consequences. Cheating, plagiarism, or other forms of academic dishonesty are not tolerated. *Failing to cite a source correctly in writing is plagiarism!* Academic integrity is essential to a positive teaching and learning environment. All students enrolled in University courses are expected to complete coursework responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as your own, can result in disciplinary action. The Academic Honor Code Statement of Purpose reads as follows:

6.1 Academic Honor Code Statement of Purpose

Every member of the Hamline University community – students, faculty, administrators, and staff – is responsible for upholding the highest standards of academic integrity at all times. The assumption that academic work is an honest reflection of one's knowledge and skills is fundamental to the integrity of Hamline University and to the value of a Hamline diploma. If students at an institution of higher education develop a reputation for receiving grades based on honest work, GPAs and academic degrees held by all students from that institution are valued more highly. The faculty subscribe to standards of academic honesty in their research and teaching. Every person in the University is responsible for adhering to the principles of the Academic Honor Code.

6.2 Violations and Sanctions

Violations of the Academic Honor Code will be dealt with seriously. If a student is accused of engaging in academic dishonesty in a class, the faculty member may decide on a sanction for the student (*e.g.,* assign a failing grade for an exam or the course). The student will be informed of the alleged violation, the evidence upon which the allegation is based, and the sanction to be imposed. The faculty member will file a violation form with the Office of the Dean where the course is housed, which will maintain a permanent record of reported student violations. Students may appeal to the Chair of the Department in which the class is housed. Should a student be dissatisfied with the decision of the Department Chair, the student may appeal to the appropriate academic Dean. The decision from that office will be final. Sanctions for students found to have engaged in academic dishonesty may include:

- Failing or receiving a lower grade on an exam, paper, or assignment
- Failing or receiving a lower grade for a course
- Academic suspension or expulsion

Please refer to the Academic Honor Code and Student Conduct Code online for the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions and further details.

7.0 Social Justice Statement

Hamline University is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran's status, religion, sexual orientation, color, or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration. See the Wesley Center website for further details.

8.0 Special Accomodations

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with Steve Anderson; Director of Disability Resources (651-523-2740, West Hall 108) as soon as possible to discuss accommodations. Please see the Disability Resources website for further details. If you have already arranged accommodations through Disability Resources, please ensure submission of your accommodation letter within the first two weeks of class. Accommodations will only be provided after the letter is submitted to me and with sufficient lead-time for me to arrange testing or other accommodations. Although I will receive the letter electronically, I expect you to initiate a conversation with me about the accommodations.

9.0 Adverse Weather Statement

In the event of inclement or threatening weather, everyone should use his or her best judgment regarding travel to and from campus. Safety should be the main concern. If you cannot get to class because of adverse weather conditions, you should contact me as soon as possible. Similarly, if I am unable to reach our class location, I will notify you of any cancellation or change as soon as possible (1 hour before class starts) via email to prevent you from embarking on any unnecessary travel. If you cannot get to class because of weather conditions, I may make allowances relative to required attendance policies, as well as any scheduled activities.

10.0 Tentative Course Outline

Please note that this schedule is subject to change at the discretion of the instructor.
Note: Readings designated with □ will be provided on Canvas.

Week	Date	Content/Material	Assigned Readings
1	8/30	Course Introduction Firearms Types and Nomenclature Firearm Operation/Mechanisms	Ch. 1 & 2
2	9/6	History of Firearms Overview of Firearm Safety	
3	9/13	Components and Types of Ammunition Types of Bullets *Lab 1: Examination of Ammunition & Components*	Ch. 3
4	9/20	Internal, External, and Terminal Ballistics *Lab 2: Exterior Ballistics/Trajectory Reconstruction* *Assignment 2: Detailed Firearms Paper Due*	□
5	9/27	Fundamentals of Firearms Examination Instrumentation & Equipment Concepts in Comparison Microscopy *Lab 3: Observation of Class Characteristics*	Ch. 4 & 7
6	10/4	**Midterm Exam**	
7	10/11	Firearm Identification Methods *Lab 4: Cartridge Case Comparison - KM Firearms*	Ch. 8 & 9
8	10/18	Firearm Manufacturing Techniques Subclass Characteristics *Lab 4: Cartridge Case Comparison - KM Firearms*	Ch. 5 & 12
9	10/25	*Lab 5: Cartridge Case Comparison - KNM Firearms*	
10	11/1	Rifling Methods Consecutive Matching Striae *Lab 6: Cartridge Case Comparison - Casework*	Ch. 6
11	11/8	Legal Aspects Expert Testimony Considerations/Challenges *Lab 7: Bullet Comparison*	Ch. 11 &14
12	11/15	*Lab 7: Bullet Comparison*	
13	11/22	Emerging Comparison Technologies Confocal Microscopy *Lab 8: Cartridge Case & Bullet Metrology*	Ch. 15
14	11/29	Serial Number Restoration Examination of Toolmarks *Makeup Lab Session* *Assignment 3: Admissibility Paper Due*	
15	12/6	Course Recap; Review for Final Exam *Assignment 1: Firearm Mechanisms Due*	
Finals Week		**Final Exam**	