SJSU SAN JOSÉ STATE UNIVERSITY

College of Social Sciences · Justice Studies

Forensic Science Applications Section 01

FS 162

Spring 2023 3 Unit(s) 01/25/2023 to 05/15/2023 Modified 01/21/2023

Contact Information

Eric Kwong

Email: eric.kwong@sjsu.edu

Eric Kwong is an alum of SJSU's Forensic Science program, earning his BS in Forensic Science – Chemistry. He then went on to complete an MSc in Forensic Science from the University of Strathclyde in Glasgow, Scotland. While at SJSU he was the President of the Forensic Science Students group and worked as a student assistant in the Department of Justice Studies. At Strathclyde, Eric conducted preliminary research investigating the feasibility of using a handheld FTIR instrument for use in the field by personnel without a scientific background.

Office Hours

After Class or By Appointment

Course Description and Requisites

Scientific analysis and interpretation of physical evidence using identification and comparison techniques. Practical lab exercises in human identification, questioned documents, bite marks, trace evidence, presumptive testing and glass analysis. Additional topics include court testimony, quality assurance and ethics.

Lecture 2 hours/Activity 2 hours.

Prerequisite(s): FS 11 or, JS or FS Major/Minor, Upper Division Standing. JS students may substitute JS 10 for FS 11 or FS 12.

Letter Graded

Classroom Protocols

T/TH 11-1245 in HB 207

The basic format of this class will be lectures, with practical exercises to help reinforce topics discussed in lecture.

Students are not allowed to record without instructor permission

Lab Days

- Lab safe attire is required
- Food and Drink are prohibited from being consumed during practical exercise days

Program Information

Program Learning Outcomes

At the end of a Bachelor of Science degree in Forensic Science, students should be able to:

1. Apply the scientific method to draw logical conclusions about crime scenes

2. Demonstrate competence in the recognition, documentation, collection, and analysis of forensic evidence

3. Identify sources and causes of error in forensic science

4. Interpret evidence and communicate findings clearly in both written reports and oral testimony

5. Contextualize forensic science within the fields of criminal justice, human rights, and physical and mental health

Course Learning Outcomes (CLOs)

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

CLO1 Classify evidence and use appropriate analytical techniques in human identification, serology, trace evidence, questioned documents, pattern identification, glass reconstruction, and bite mark identification.

CLO2 Explain the history and importance of DNA fingerprinting, articulate the principles of DNA profiling and inheritance, and apply this knowledge to a realistic field exercise.

CLO3 Analyze and critically evaluate forensic error, and ethical issues in forensic science.

CLO4 Explain and describe the Scientific Method; the Locard Exchange Principle; safe lab practices and proper evidence handling techniques; class and individual characteristics of evidence; identification, individualization, and comparison techniques; and probative value and probability, and other important terms.

Course Materials

Forensic Science: An Introduction to Scientific and Investigative Techniques, 5/E

Author: Bell, Suzanne
Publisher: CRC Press/Taylor & Francis
Edition: 5th edition
ISBN: 9781138048126
Availability: SJSU library
Price: Free

Link to text: https://csu-sjsu.primo.exlibrisgroup.com/permalink/01CALS_SJO/tu4ck5/alma991013779419502919

May also be purchased from the bookstore, direct from Elsevier, Amazon.com, or other websites.

Other Readings

Journal articles, tutorials, and links to other required readings will be posted on Canvas. It is the student's responsibility to check the website for new postings.

Technology Requirements / equipment / materials

Required: Composition notebook, and access to a printer/scanner.

Optional: Your own lab coat and safety glasses

Grading Information

All assignments are graded based on adherence to directions, thoroughness, thoughtfulness, clarity, and logic.

Note: A final grade of C or better is required for all Justice Studies and Forensic Science major and minor coursework.

Criteria

Type	Weight	Topic	Notes
Exams & Quizzes	40%		There will be two midterms and periodic quizzes on terminology, readings, lecture, and labs, and one final exam. Format will include multiple choice, fill-in, short essay, and diagrams. (CLO1-4)
Practical Exercises	40%		These labs may include observation, Locard Principle, trace evidence, Physical Fit, biometrics, Questioned Documents, Pattern Evidence, ethics, and others. (CLO1)
DNA/Mass Disaster Paper	10%		Students will determine familial relationships between and among disarticulated body parts by correctly interpreting DNA profiles and write their findings in a 3–4-page scientific report. (CLO2)
Group Presentation	5%		In small groups, students will present a case or project on forensic error or other related topic. (CLO 3)
Chapter Review Questions	5%		Students will complete the chapter review questions at the back of each assigned chapter. (CLO1-4)

Breakdown

Penalty for late or missed work

- Late work may be submitted for reduced credit. A 10% deduction will occur for each week that it is late, starting with the due date.
- Make-ups for exams will generally not be possible unless extraordinary, documented circumstances exist.
- Practical exercises cannot be made up, so don't miss them.

Grade	Range	Notes
A+	97 to 100	
A	94 to 96.9	
A-	90 to 93.9	
B+	87 to 89.9	
B	84 to 86.9	
B-	80 to 83.9	
C+	77 to 79.9	
C	74 to 76.9	
C-	70 to 73.9	
D+	67 to 69.9	
D	64 to 66.9	
D-	60 to 63.9	
F	Below 60	
Extra Credit	up to 3% of final grade	Opportunities include: 1. Join a professional organization (CAC, AAFS, IAI, etc.) that is of specific interest to you and supply proof of membership before the end of the semester. 2. Tour a crime lab and write a 2-page, typed, double-spaced synopsis of the experience. Santa Clara has monthly tours, and San Mateo has an annual tour in October. 3. Attend a Forensic Science Seminar and write up a 2-page, typed, double-spaced synopsis of the experience.

University Policies

Per University Policy S16-9 (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

Schedule subject to change with fair notice via canvas

Week	Date	Topics and Activities	Readings
1	1/26	**Module I:** Introduction to Forensic Science Go over Lab Health and Safety/Fundamentals Form Lab Groups	
2	1/31	Lecture: Brief history of forensic science, forensic laboratory structure, investigative personnel roles & responsibilities, The scientific method, characteristics of science/scientists	Chapter 2
	2/2	Lab: Observation	
3	2/7	Lecture: Characteristics of evidence: class, individual, identification; types of evidence, types of analysis, databases, chain of custody, probative value of forensic evidence, probability **Terminology Quiz at home**	
	2/9	**Module II:** Trace Evidence Lecture: Microscopy & Trace, Physical Fit	Chapter 17 Start Locard Lab
4	2/14	Lab: Start Locard/trace evidence	
	2/16	Lab: Finish Locard/trace evidence	Start Soil/Hair Lab
5	2/21	Lab: Physical Fit, Soil/Hair **Terminology Quiz at home**	
	2/23	Lab: Finish Physical Fit, Soil/Hair	
6	2/28	**Module III:** Biometrics and Human Identification Lecture: Human ID Early Methods **Midterm 1 – In Class**	Chapters 7 and 14

Week	Date	Topics and Activities	Readings
	3/2	Lecture: Bones, and bite marks Start Forensic Anthropology	
7	3/7	Lab: Forensic Anthropology	
	3/9	Lab: Bite Marks	
8	3/14	Lecture: Serology	Chapter 9
	3/16	Lab: Presumptive Tests	
9	3/21	Lecture: DNA **Terminology Quiz at home**	Chapter 10 Start Mass disaster
	3/23	**Midterm 2 – In Class** Lab: Mass Disaster Notebook Check	
10	3/27-3/31	**Spring Recess – No Classes**	
11	4/4	**Module IV:** Science in the Courtroom & Problems in Forensic Science Lecture: Expert Testimony, QA/QC Lab: Continue working on Mass Disaster	Chapter 1 NAS Report Summary
	4/6	Work on Group Presentations – No in person meeting	
12	4/11	**Complete NAS quiz prior to class** NAS Report Reading Review – In class group discussion Lecture: Problems in Forensic Science	Start Ethics Lab
	4/13	Lecture: Ethics Lab: Ethics	
13	4/18	**Module V:** Other Forensic Disciplines Lecture: Questioned Documents	Chapters 18, 20, and 21
	4/20	Lab: QD	
14	4/25	Lab: Finish QD	Chapters 14 - 16
	4/27	Lecture: Tool Marks and wounds, Pattern Evidence	

Week	Date	Topics and Activities	Readings
15	5/2	Lab: Stab Lab	
	5/4	Group Presentations	
16	5/9	**Module VI:** Getting a Job **Topics:** Resumes, cover letters, interviews **Labs:** Finish Stab Lab Job Lab Review for Final **Terminology Quiz at home**	Study for Final
	5/11		
Final Exam		**Tuesday, 5/23, 945-1200**	

See Canvas for assignments, due dates, and additional readings