

San José State University
College of Social Sciences/Department of Justice Studies
FS 162 Forensic Science Applications, CRN 30160 & 30161
Spring 2022

Course and Contact Information

Instructor:	Eric Kwong
Email:	eric.kwong@sjsu.edu
Office Hours:	After class or by appointment
Class Days/Time:	T/TH 1430-1630
Classroom:	HB 207
Prerequisites:	FS 11 or FS 12, JS or FS Major/Minor, Upper Division Standing. JS students may substitute JS 10 for FS 11 or FS 12.
Library Liaison:	Nyle Monday, nyle.Monday@sjsu.edu
FS/JS Lib Guide:	https://libguides.sjsu.edu/c.php?g=230074&p=1526987

Course Format

In the interest of safety (due to COVID-19), this class has been moved online for the first three weeks of the Spring 2022 semester. In person meetings will resume the week of February 14th.

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

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Learning Management System course login website at <http://sjsu.instructure.com>. You are responsible for regularly checking Canvas/your email on one.sjsu.edu to learn of any updates.

Course Description

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.

Course Learning Outcomes (CLO)

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. Required Texts/Readings

Textbook (Required)

Bell, S. (2019). Forensic Science: An Introduction to Scientific and Investigative Techniques, 5/E. CRC Press/Taylor & Francis. ISBN: 9781138048126

Available for FREE via SJSU library:

https://csu-sjsu.primo.exlibrisgroup.com/permalink/01CAL5_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.

Other technology requirements / equipment / material

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

Optional: Your own lab coat and safety glasses

Course Requirements and Assignments

1. 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)
2. Practical Exercises (40%) These labs may include observation, Locard Principle, trace evidence, Physical Fit, biometrics, Questioned Documents, Pattern Evidence, ethics, and others. (CLO1)
3. 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)
4. Discussion Board (5%) Students will respond substantively to discussion prompts and to classmates on various forensic science-related topics. (CLO 1-4)
5. Chapter Review Questions (5%) Students will complete the chapter review questions at the back of each assigned chapter. (CLO1-4)

Grading Information

Grading Scale for All Assignments

A+	97-100	B+	87-89.9	C+	77-79.9	D+	67-69.9	F	<60
A	94-96.9	B	84-86.9	C	74-76.9	D	64-66.9		
A-	90-93.9	B-	80-83.9	C-	70-73.9	D-	60-63.9		

Determination of Grades

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.

Extra credit

Extra credit opportunities may be available throughout the semester and will be used to augment the final grade up to 3%. 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.

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.

Recording Class

- Students are not allowed to record without instructor permission
Students are prohibited from recording class activities (including class lectures, office hours, advising sessions, etc.), distributing class recordings, or posting class recordings. Materials created by the instructor for the course (syllabi, lectures and lecture notes, presentations, etc.) are copyrighted by the instructor. This university policy ([S12-7](#)) is in place to protect the privacy of students in the course, as well as to maintain academic integrity through reducing the instances of cheating. Students who record, distribute, or post these materials will be referred to the Student Conduct and Ethical Development office. Unauthorized recording may violate university and state law. It is the responsibility of students that require special accommodations or assistive technology due to a disability to notify the instructor.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/> Make sure to review these university policies and resources.

Important dates this semester: <https://www.sjsu.edu/registrar/calendar/spring-2022.php>

Tips for Online Learning

- If you are new to Canvas, please visit the Canvas Guide for Students: https://www.sjsu.edu/ecampus/teaching-tools/canvas/student_resources/index.html
- Download the Canvas mobile app to your smartphone so that you will have access to the course if you are away from a computer
- Login to class every other day so that you do not miss important announcements and assignment deadlines, and set reminders on your phone
- Bookmark frequently visited course sites and resources so that you can revisit them to study for tests

Academic Integrity

Students are expected to pursue their studies with honesty and integrity. When students have a person other than themselves take a test or complete an assignment; cut and paste writing from a source into their paper without giving proper credit; accept, buy, or copy the work of another; share or sell their own work; lie, cheat, or otherwise misrepresent their work product, they have committed the serious offense of *academic dishonesty*. If you cheat, copy, or misrepresent your work in this class in any way, including citation “errors,” you will receive a 0 on the assignment and the incident will be reported to the Office of Student Conduct. You are expected, in all classes, to do your own thinking and writing, and turn in your best original work.

Forensic Science Student Group (FSS)

Forensic Science Students is a campus group open to all students interested in forensic science. The group meets biweekly during the semester and offers friendship, forensic science-related activities, networking opportunities, and mentorship. Members of the FSS participate and assist at conferences, CSI camps, guest speaking events, and other extra-curricular activities. Contact sjsu.fss@gmail.com or visit their website <https://sites.google.com/site/forensicsciencestudents/home> for more information and to apply

Justice Studies Reading and Writing Philosophy

The Department of Justice Studies is committed to scholarly excellence. Therefore, the Department promotes academic, critical, and creative engagement with language (i.e., reading and writing) throughout its curriculum. A sustained and intensive exploration of language prepares students to think critically and to act meaningfully in interrelated areas of their lives— personal, professional, economic, social, political, ethical, and cultural. Graduates of the Department of Justice Studies leave San José State University prepared to enter a range of careers and for advanced study in a variety of fields; they are prepared to more effectively identify and ameliorate injustice in their personal, professional and civic lives. Indeed, the impact of literacy is evident not only within the span of a specific course, semester, or academic program but also over the span of a lifetime.

Instructor

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.

FS 162 Forensic Science Applications Spring 2022 Course Schedule

Schedule subject to change with fair notice via canvas

Week	Date	Topics and Activities	Readings
1-3	1/27-2/10	Module I: Introduction to Forensic Science Topics: Brief history of forensic science, forensic laboratory structure, investigative personnel roles & responsibilities, The scientific method, characteristics of science/scientists, characteristics of evidence: class, individual, identification; types of evidence, types of analysis, databases, chain of custody, probative value of forensic evidence, probability Labs: Observation Quizzes/Tests: Terminology Quiz	Chapter 2
4	2/15	In Person Teach Resumes Module II: Trace Evidence Lecture: Microscopy & Trace, Physical Fit Go over Lab Health and Safety/Fundamentals, form groups	Chapter 17 Start Locard Lab
	2/17	Lab: Physical Fit, Soil/Hair	
5	2/22	Lab: Finish Physical Fit, Soil/Hair Start Locard/trace evidence	
	2/24	Lab: Finish Locard/trace evidence Terminology Quiz at home	
6	3/1	Midterm 1	
	3/3	Module III: Biometrics and Human Identification Lecture: Human ID Early Methods, bones, and bite marks	Chapters 7 and 14
7	3/8	Lab: Forensic Anthropology, Bite Marks	
	3/10		
8	3/15	Lecture: Serology	Chapter 9
	3/17	Lab: Presumptive Tests	
9	3/22	Lecture: DNA Lab: Mass Disaster Terminology Quiz at home	Chapter 10
	3/24	Midterm 2	
10	3/28-4/1	Spring Recess – No Class	
11	4/5	Lab: Mass Disaster	
	4/7	Module IV: Science in the Courtroom & Problems in Forensic Science Lecture: Expert Testimony, QA/QC	Chapter 1 NAS Report Summary

Week	Date	Topics and Activities	Readings
12	4/12	Complete NAS quiz prior to class NAS Report Reading Review – Group discussion Lecture: Problems in Forensic Science	Start Ethics Lab
	4/14	Lecture: Ethics Lab: Ethics	
13	4/19	Module V: Other Forensic Disciplines Lecture: Questioned Documents	Chapters 18, 20, and 21
	4/21	Lab: QD	
14	4/26	Lab: QD	
	4/28	Lecture: Tool Marks and wounds, Pattern Evidence	Chapters 14 - 16
15	5/3	Lab: Stab Lab	
	5/5	Lab: Stab Lab	
16	5/10 - 5/12	Module VI: Getting a Job Topics: Resumes, cover letters, interviews Labs: Job Lab Review for Final Terminology Quiz at home	Canvas Study for Final
Final Exam		Wednesday, 5/18, 1445-1700	

See Canvas for assignments, due dates, and additional readings