

**San Jose State University**  
**College of Social Sciences/ Department of Justice Studies**  
**FS 162 Forensic Science Applications, CRN 26535 & 26536**  
**Spring 2021**

Instructor	Eric Kwong
Instructor Email	<a href="mailto:eric.kwong@sjsu.edu">eric.kwong@sjsu.edu</a>
Office Hours	By appointment only
Class Days/Time	Asynchronous (no required class meetings)
Prerequisites	UPPER DIVISION STANDING JS MAJOR OR MINOR: JS 10; FS MAJOR OR MINOR: FS 11
Library Subject Liaison	Nyle Monday <a href="mailto:nyle.monday@sjsu.edu">nyle.monday@sjsu.edu</a>
FS LibGuide	<a href="http://libguides.sjsu.edu/c.php?g=230074&amp;p=1526987">http://libguides.sjsu.edu/c.php?g=230074&amp;p=1526987</a>

### **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.

FS 162 is a required course in the FS major and FS minor. It satisfies Area B (Methodology) in the JS major. The course is recommended for anyone who plans to pursue a career in investigations.

### **Course Format**

In the interest of safety (due to COVID-19), this class has been moved online for Spring 2021. It is scheduled as an asynchronous class, meaning that it has no required meetings, However, I will either hold optional-attendance weekly meetings to go over material in depth, and/or post video lectures which you will need to view.

### **Course Content Learning Outcomes**

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 and Materials

- Bell, S. (2019). *Forensic Science: An Introduction to Scientific and Investigative Techniques*, 5/E. CRC Press/Taylor & Francis. ISBN: 9781138048126
- Composition notebook, pens
- 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.
- Magnifier with minimum 25X power: Magnifier/Microscope (recommended as it has up to 200x magnification and USB), or Magnifying Eyeglasses, metric ruler, protractor
- Access to printer/scanner

### 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%) 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 Scale for All Assignments

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

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.

## Online Class Protocol and Policies

- In Zoom class sessions, I will initially “mute all.” This is to limit the background noises present in all our lives. Please raise your hand to ask a question (hand raising is a Zoom feature). I will call on you and you can unmute yourself. Alternatively, you can type questions in the chat box.
- Please be respectful of each other in Zoom class (live) and in writing on the discussion board. Absolutely no racist, sexist, homophobic, or other offensive or discriminating language or imagery will be tolerated.
- Plagiarized work will result in a 0 grade on the assignment and will be reported to the Office of Student Conduct. See below for more information on academic integrity.
- Late work may be submitted for reduced credit, -10% for each week that it is late.
- Make-ups for exams and quizzes will generally not be permitted. Please set reminders so that you do not miss them.

## 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/>

Important dates this semester: <https://www.sjsu.edu/registrar/calendar/Spring-2021.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](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](mailto: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.

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## **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.

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## FS 162 Forensic Science Applications Spring 2021 Course Schedule

Schedule is subject to change.

Weeks	Dates	Topics and Activities	Required Reading
1-2	01/27-02/07	<p><b>Module I:</b> Introduction to Forensic Science</p> <p><b>Topics:</b> Brief history of forensic science, forensic laboratory structure, investigative personnel roles &amp; 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</p> <p><b>Labs:</b> Observation</p> <p><b>Quizzes/Tests:</b> Terminology Quiz</p>	<p>Chapter 2</p> <p>See Canvas for assignments, due dates, and additional readings</p>
3-4	02/08-02/21	<p><b>Module II:</b> Trace Evidence</p> <p><b>Topics:</b> Microscopy &amp; Trace, Physical Fit</p> <p><b>Labs:</b> Locard/trace evidence, soil/hair, physical fit</p> <p><b>Quizzes/Tests:</b> Terminology Quiz, Midterm 1</p>	<p>Chapter 17</p> <p>See Canvas for assignments, due dates, and additional readings</p>
5-8	02/22-03/21	<p><b>Module III:</b> Biometrics and Human Identification</p> <p><b>Topics:</b> Early methods of identification, bones, teeth, ears, lips, serology, DNA, familial DNA, genetic genealogy</p> <p><b>Labs:</b> Bitemarks, bones, ears/lips, DNA, mass disaster</p> <p><b>Quizzes/Tests:</b> Terminology Quiz, DNA Quiz, Midterm 2</p>	<p>Chapter 7, 9, 10, 14</p> <p>See Canvas for assignments, due dates, and additional readings</p>
<b>10</b>	<b>03/29-04/02 Spring Recess – No Classes</b>		
9, 11-12	03/22-03/28 04/05-04/18	<p><b>Module IV:</b> Science in the Courtroom &amp; Problems in Forensic Science</p> <p><b>Topics:</b> Frye, Daubert, FRE, expert testimony, problems NAS Report, CSI Effect, evidence backlog, types &amp; sources of error, absence of a research culture in FS, pattern evidence, FEPAC, FSAT, quality control &amp; quality assurance, accreditation, certification, standardization, professional ethics</p> <p><b>Labs:</b> Innocence Project, ethics</p> <p><b>Quizzes/Tests:</b> Terminology Quiz</p>	<p>Chapter 1, NAS Report,</p> <p>See Canvas for assignments, due dates, and additional readings</p>
13-14	04/19-05/02	<p><b>Module V:</b> Other Forensic Disciplines</p> <p><b>Topics:</b> Questioned docs, behavioral science, digital forensics</p> <p><b>Labs:</b> QD</p> <p><b>Quizzes/Tests:</b> Digital Forensics Quiz</p>	<p>Chapter 18, 20, 21</p> <p>See Canvas for assignments, due dates, and additional readings</p>
15-17	05/03-05/17	<p><b>Module VI:</b> Getting a Job</p> <p><b>Topics:</b> Resumes, cover letters, interviews</p> <p><b>Labs:</b> Job Lab</p>	<p>Canvas</p>
Final Exam	Thursday, 05/20, 1715-1930		