



**Department of Justice Studies**  
**FS-11 Survey of Forensic Science**  
**Fall 2019**

Instructor: Dr. Mark Barash

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Office Hours: Tuesdays & Thursdays: 11:00am to 12:00pm; Wednesdays: 3:00pm to 4:00pm; Online (Zoom): by appointment

Class Days/Time: Tuesdays/Thursdays 4:30pm-5:45pm

Classroom: MacQuarrie Hall 324

Canvas Course Website: <https://sjsu.instructure.com/courses/1328449> Login using your Tower ID Card and Password → Courses → FS 11

Prerequisites: Senior standing in final semester; Justice Studies or Forensic Science major; JS 100W and JS 114 with a "C or better"; Department Consent.  
Note: A grade of "C" or better is required for Justice Studies majors.

FS Library Liaison: Silke Higgins [silke.higgins@sjsu.edu](mailto:silke.higgins@sjsu.edu)

FS Lib Guide: <http://libguides.sjsu.edu/content.php?pid=57768&sid=2450175>

FS Program Website: <http://www.sjsu.edu/justicestudies/degrees/fs-program/>

## Course Description

This survey course introduces students to the profession of forensic science. Topics include the history and sub-disciplines of forensic science, and the scientific methods and analytical instrumentation used for the recognition, documentation, collection, preservation, and analysis of physical evidence to assist with criminal investigations. Note: FS 11 is required for the successful completion of the FS biology and chemistry majors, as well as the FS minor. It is recommended for JS majors. However, it is open to any student with a general interest in subject.

## Course Goals and Student Learning Objectives (CLO)

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

- **CLO1** Define forensic science as it relates to criminal and civil contexts, as well as key concepts and principles such as the scientific method, the fourth amendment, chain of custody, class versus individual evidence, probative value, and Locard's exchange principle.
- **CLO2** Understand the roles of forensic and investigative personnel, their separate duties and how they work together.
- **CLO3** Summarize the history of DNA profiling, principles of genetics concerning DNA, Mendelian inheritance, STRs, alleles, genotypic and phenotypic expressions of genes, and PCR.
- **CLO4** Display foundational knowledge in the history of forensic science, the structure and organization of crime labs, the analytical processes and procedures used, the sub-disciplines and contributing sciences of forensic science, and the types of evidence encountered.
- **CLO5** Articulate a realistic perspective of the field of forensic science, the nature of the work, its limits, challenges, and successes.

## Required Texts

### Textbooks

- James, S., Nordby, J., & Bell, S. (2014). *Forensic Science: An Introduction to Scientific and Investigative Techniques*, 4/E. Boca Raton, FL: CRC Press/Taylor & Francis ISBN-13: 978-1439853832. The textbook is available for purchase in hard copy at the bookstore or can be accessed for free on-line at <https://sjsu-primo.hosted.exlibrisgroup.com/primo->

[https://www.cengage.com/engageplatform/explore/fulldisplay?docid=01CAL5\\_ALMA71478650520002901&context=L&vid=01CAL5\\_SJO&search\\_scope=EVERYTHING&tab=everything&lang=en\\_US](https://www.cengage.com/engageplatform/explore/fulldisplay?docid=01CAL5_ALMA71478650520002901&context=L&vid=01CAL5_SJO&search_scope=EVERYTHING&tab=everything&lang=en_US)

- Saferstein, Richard. (2018) Criminalistics: An Introduction to Forensic Science (12th Edition), Pearson ISBN-13: 978-0134477596. This textbook is available for purchase in hard copy at the bookstore or online.
- **Links to additional resources will be posted on Canvas. Check the site frequently!**

## Course assignments and Grading Policy

The course requirements consist of 3 assessment tasks:

### 1. Five quizzes, 10% each (50% total): individual task

- 1.1. Each quiz will consist of responses to approximately ten multiple choice, matching, true/false or short answer questions. The questions will cover the material learned during the lectures, discussions in-class and additional readings.

### 2. A research paper (20%): group task

- 2.1. Working in pairs or trios, students will write a literature review about one criminal case that became a benchmark or in which a major error/misjustice occurred. Alternatively, the students can pick another forensic topic about current controversies or other relevant topics of interest. All the topics must be approved by the course coordinator prior to writing. No paper will be accepted without previous communication and approval.
- 2.2. The review should consist of 4-5 standard pages, written in a 12-point font (e.g. Times New Roman, Arial, etc.), with 1.5-point space lines in a paragraph. The paper should be written using one of the common text editors such as Microsoft Word. The papers should be submitted via Canvas at their respective due dates (to be announced) in either .docx, .doc or .pdf format. Using an automatic citation software (e.g. Endnote, Refworks or Mendeley) is strongly encouraged.
- 2.3. Students will be graded on their ability to synthesize course materials and provide a critical analysis of the chosen topic of research.
- 2.4. The paper must include the following:
  - i) Introduction: Description of the specific topic, its importance and the primary thesis
  - ii) Literature review: concise and balanced coverage of the discussed topic, based on the relevant literature;
  - iii) Conclusions

iv) References

2.5. The papers will be graded based on the level of competency and flow, knowledge of the subject, ability to engage the audience and conclusions.

**3. Final digital media presentation (30%): group task; Overall assessment of this project will be performed jointly by the students (20% of the total mark) and course coordinator (80% of the total mark), accounting to the 30% of the final course grade.**

3.1. This task would require coordinated work of between 2 to 4 students working together. You will be required to choose a relevant topic (either based on your literature review or from a list provided by the course coordinator or by choosing your own topic, following approval by the coordinator) and create a digital media artefact about this topic in a video format. The length of the video should be between 3 to 5 minutes. This video file should be uploaded into one of the free online platforms, such as Youtube or Vimeo and a link to the file must be submitted via Canvas prior to its presentation in the class.

3.2. Digital media training will be provided to you with a lecture on digital media principles covering layout design, colour theory, fonts, use of images and basic video techniques. Additional online modules will be available to provide assistance with digital media.

3.3. The digital media project will benefit you in various ways such as learning the subject content and learning digital media principles to communicate effectively, as well as encouraging creativity. The digital media project is an authentic task that resembles real life scenarios, such as communicating the scientific findings to the jury or a police investigator.

3.4. This project however is not about using expensive equipment or technology. It is about learning to tell a story in a succinct, clear and visual manner using digital media principles to ensure the message will be conveyed appropriately. The digital “props” are not to be ignored of course, as they could be very helpful to deliver your ideas. Nonetheless, your media project will be primarily judged on its content and how well you communicate it to the audience, and less on how “fancy” or “sophisticated” your animations are.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including preparing for class, participating in course activities, completing assignments, and so on. Other course structures will have equivalent workload

expectations as described in the syllabus. More details about student workload can be found in University Policy S12-3 at <http://www.sjsu.edu/senate/docs/S12-3.pdf>

### **Extra Credit Opportunities**

Extra credit opportunities may be available throughout the semester and may be used to augment your final grade up to 3% (1% each). These opportunities will also be announced on the Canvas course site and required documentation will need to be uploaded and/or submitted on line.

Examples include the following:

1. Attend a Forensic Science or Justice Studies seminar (Forensic Science Seminar Series or Ann Lucas Lecture Series) and write a two-page, double-spaced, typewritten paper that includes a synopsis of the seminar/lecture and your reaction/response. Your paper is due within one week of the event.
2. Complete the short course offered by the National Institute of Justice marked “extra credit” during the Forensic Bio module and submit your certificate of completion by the end of that module.
3. Students can write a research paper about a career in criminalistics that is of interest to the student. The paper will be in APA format and contain an introduction, the body of the research, and a conclusion. The length of a paper should be between 2 and 3 standard pages in 1.5 The paper must contain in-text citations from at least three sources.

### **Late Work and Make Ups**

Real life has deadlines and so do college classes. With this in mind, manage your time responsibly with the knowledge that late work will generally not be accepted.

If you know ahead of time that you will be offline when an assignment is due, complete it early. Make-ups will generally not be given unless extraordinary, documented circumstances exist.

Certainly, if you have a genuine problem, contact me and I will gladly do all I can to help you. If you are in any doubt about the requirements of an assignment, or due dates/times, please re-read the assignment and/or schedule. If your question is still unanswered, contact me for clarification.

## Overall 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 plus (+)	97-100	C plus (+)	77-79.9	F	<60
A	94-96.9	C	74-76.9		
<u>A minus (-)</u>	<u>90-93.9</u>	<u>C minus (-)</u>	<u>70-73.9</u>		
B plus (+)	87-89.9	D plus (+)	67-69.9		
B	84-86.9	D	64-66.9		
<u>B minus (-)</u>	<u>80-83.9</u>	<u>D minus (-)</u>	<u>60-63.9</u>		

Note: **A grade of C or better is required for all Justice Studies major and minor coursework, and desirable for students enrolled in the Forensic Science majors and/or minor.**

### Department of 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.

### Classroom Protocol

- Students are expected to: attend all class meetings, arrive on time, stay for the duration of the class period, complete all readings and assignments in accordance with the dates on the course schedule.
- Students are responsible for all missed notes, materials and announcements due to absence. You are encouraged to exchange contact information with someone in class just in case.

The use of a laptop, tablet or other mobile devices is strictly limited to learning purposes (e.g. note taking, presentation etc.). Students caught using such items for other non-class purposes may be prohibited from bringing them back to class, and will likely be dismissed from class for the day.

### **University Policies**

University Policies: Office of Graduate and Undergraduate Programs maintains university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. You may find all syllabus related University Policies and resources information listed on GUP's Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/>

### **Student Resources**

#### **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. FSS Peer Mentors assist forensic science students in navigating the major, understanding requirements and prerequisites, and making wise choices in their college careers. Mentors may also offer limited tutoring, and facilitate educational and professional opportunities. Contact [sjsu.fss@gmail.com](mailto:sjsu.fss@gmail.com) for more information, or to get an application for membership.

#### **Student Technology Resources**

Computer labs for student use are available in the Academic Success Center located on the 1<sup>st</sup> floor of Clark Hall and on the 2<sup>nd</sup> floor of the Student Union. Additional computer labs may be available in your department/college. Computers are also available in the Martin Luther King Library. A wide variety of audio-visual equipment is available for student checkout from Media Services located in IRC 112. These items include digital and VHS camcorders, VHS and Beta video players, 16 mm, slide, overhead, DVD, CD, and audiotape players, sound systems, wireless microphones, projection screens and monitors.

#### **Learning Assistance Resource Center**

The Learning Assistance Resource Center (LARC) located in Room 600 in the Student Services Center assists students in the development of their full academic potential and motivates them to become self-

directed learners. The center provides support services, such as skill assessment, individual or group tutorials, subject advising, learning assistance, summer academic preparation and basic skills development. <http://www.sjsu.edu/larc/>

### **SJSU Writing Center**

The SJSU Writing Center located in Room 126 in Clark Hall offers a variety of resources to help students become better writers, including one-on-one tutoring sessions and numerous writing workshops. All services are free for SJSU students. <http://www.sjsu.edu/writingcenter/>

### **CASA Student Success Center**

The Student Success Center in the College of Applied Sciences and Arts (CASA) provides advising for undergraduate students majoring or wanting to major in programs offered in CASA Departments and Schools. All CASA students and students who would like to be in CASA are invited to stop by the Center for general education advising, help with changing majors, academic policy related questions, meeting with peer advisors, and/or attending various regularly scheduled presentations and workshops. If you are looking for academic advice or even tips about how to navigate your way around SJSU, check out the CASA Student Success Center. Location: MacQuarrie Hall (MQH) 533. Contact information: [408.924.2910](tel:408.924.2910) Website: <http://www.sjsu.edu/casa/ssc/>. The CASA Student Success Center also provides study space and laptops for checkout.



## FS-11, Survey of Forensic Science, Fall 2019, Tentative Course Schedule

**Notes about the course schedule: The order of the discussed topics might slightly change, based on students' progress with discussed material. I reserve the right to change the due dates listed above, but only in a manner that benefits students (e.g., due dates can only be pushed back, never moved forward).**

Week	Date	Topics, Readings, Assignments, Deadlines
1	08/22/19	Course introduction Overview of the syllabus, assignments and expectations. Brief history of forensic science.
2	08/27/19 & 08/29/19	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
3	09/03/19 & 09/05/19	Microscopy and trace evidence, Locard Exchange Principle, primary and secondary transfer
4	09/10/19 & 09/12/19	CSI, blood pattern analysis <b>Quiz 1</b>
5	09/17/19 & 09/19/19	Drugs and forensic toxicology
6	09/24/19 & 09/26/19	Forensic biology: historical overview, serological methods, presumptive and confirmatory tests; <b>Quiz 2 released (due next Thursday)</b>
7	10/01/19 & 10/03/19	Forensic biology: contemporary DNA profiling
8	10/08/19 & 10/10/19	Forensic biology: emerging forensic DNA technologies <b>Quiz 3 released (due next Thursday)</b>
9	10/15/19 10/17/19	Forensic biology: summary Digital media principals lecture

10	10/22/19 10/24/19	Fingermarks analysis Discussing Quiz 3 results and assessments 4 and 5 requirements
11	10/29/19 10/31/19	Investigation of human remains Physical impressions analysis: firearms, tool marks and other impressions. <b>Quiz 4 released (due next Thursday)</b>
12	11/05/19 11/07/19	Hairs, fibers and polymers examination or Forensic photography, matter, light and glass examination Arson investigation
13	11/12/19 11/14/19	Digital forensics and forensic intelligence. <b>Quiz 5 released (due next Tuesday)</b> Expert testimony, Frye and Daubert standards, QC and QA, standardization, validation and proficiency testing;
14	11/19/19 11/21/19	Contemporary issues in forensic science, PCAST report, The Innocence project; <b>Please submit a draft of your paper for a feedback from instructor.</b> <b>Course summary</b>
15	11/26/19 11/28/19	<b>Feedback session</b> <b>Public holiday – no lecture</b> <b><u>Literature review paper due date (11/30).</u></b>
16	12/03/19 12/05/19	<b>Digital media presentations and discussions</b> <b>Digital media presentations and discussions</b>
Instead of the final exam	<b>12/17/19</b> <b>14:45-17:00</b>	<b>Digital media presentations and discussions</b>