



Department of Justice Studies
FS 11 Survey of Forensic Science
Section 80/CRN 24642, Spring 2022

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| Instructor | Dr. Shawna Bolton |
| Contact Information | Online: Zoom Office Hours Email: shawna.bolton@sjsu.edu Phone: 408-924-8974 |
| Office Location and Hours | Health Building, Rm 210A Drop in: M & W 2:30p-4:30p, T 2:00p-4:00p OR by appointment |
| Canvas Course Website | https://sjsu.instructure.com/courses/1472806/ Login using your Tower ID Card and Password → Courses → FS 11 |
| Lecture Days/Time | Asynchronous - No appointed meet time |
| Practical Location | Practicals will generally take online during an agreed upon time by your group members, unless otherwise stated |
| Prerequisites | None |
| FS Library Liaison | Nyle Monday nyle.monday@sjsu.edu |
| FS Lib Guide | http://libguides.sjsu.edu/content.php?pid=57768&sid=2450175 |
| FS Program Website | SJSU Justice Studies Department Bachelor of Forensic Science Program |

Course Description

This is an introductory course to forensic science. It is intended to familiarize students with core concepts and principles, such as the scientific method, that govern the field and provide an overview of the various subfields within this discipline. Topics such as the following will be covered: the history of forensic science, its role within criminal justice, the handling of evidence, biological and chemical applications, and the use of trace and patterned evidence to assist with criminal investigations. Additional topics will include forensic anthropology, forensic scientists as expert witnesses, current practices and future prospects for the field.

***Disclaimer:** This class is intended for mature students and may cover graphic content, such as criminal cases, discussions, and/or topics. Most of the material presented will NOT be censored. Under NO CIRCUMSTANCES are students permitted to take photos of the lecture slides and/or photos. Failure to comply with these guidelines may result in academic penalty.*

Outlines will be provided or made accessible via Canvas for each lecture pertaining to the topic that will be discussed.

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.

Mode of Instruction

This course is offered **asynchronously**. In other words, there is no scheduled classroom or online video conferencing for which this course is designated to take place on a designated day(s) at an elected time(s) (see SJSU [Instruction Modes](#)). **NOTE:** In the event that there is a federal/state mandate for the CSU to return to sheltering-in-place, this course will switch to using the video conference application, **Zoom**. Practical sessions will continue to take place remotely.

Technology Requirements

(In the event that there is a call to a revert to online synchronous modality)

- Students are required to have an electronic device (laptop, desktop or tablet) with a camera and built-in microphone. SJSU has a free [equipment loan program](#) available for students.
- Students are responsible for ensuring that they have access to reliable Wi-Fi during class. If students are unable to have reliable Wi-Fi, they must inform the instructor, as soon as possible to determine an alternative. See the [SJSU Learn Anywhere](#) website for current Wi-Fi options on campus.

Zoom or Other Teleconferencing Platforms Protocol

Use of Camera Remotely

Students are encouraged to turn their cameras on during group activities/discussion (not a requirement) to foster a sense of community, increase focus, remain engaged and maintain accountability. To test your video click on this Zoom Help Center link, [Testing Your Video](#). An option to “[Choose a Virtual Background](#)” exists if you wish to display an image or video as your background (for privacy or personal flare). You may also choose to [customize your Zoom Profile](#) by adding a personal picture or an Avatar (i.e. Mirror: Cartoon Avatars & Stickers for Zoom, Loomie, Loomie 3D Avatars, etc.) to your Zoom profile as fun, creative and memorable way to display your person or interests. See *Zoom Classroom Etiquette* below for more details.

Zoom Classroom Etiquette

- **Mute Your Microphone:** To help keep background noise to a minimum, make sure you mute your microphone when you are not speaking.
- **Be Mindful of Background Noise and Distractions:** Find a quiet place to “attend” class, to the greatest extent possible.
 - Avoid video setups where people may be walking behind you, people talking/making noise, etc.
 - Avoid activities that could create additional noise, such as shuffling papers, listening to music in the background, etc.
- **Position Your Camera Properly (if using):** Be sure your webcam is in a stable position and focused at eye level.

- **Limit Your Distractions/Avoid Multitasking:** You can make it easier to focus on the meeting by turning off notifications, closing or minimizing running apps, and putting your smartphone away (unless you are using it to access Zoom).
- **Use Appropriate Virtual Backgrounds:** If using a virtual background, it should be appropriate and professional and should NOT suggest or include content that is objectively offensive or demeaning.

Recording of Zoom Classes/Group Meet-Up Sessions

This course or portions of this course (i.e., lectures, discussions, and student presentations) *may* be recorded for instructional or educational purposes. The recordings will only be shared with students enrolled in the class through Canvas. The recordings will be deleted at the end of the semester. If, however, you would prefer to remain anonymous during these recordings, then please speak with the instructor about possible accommodations (e.g., temporarily turning off identifying information from the Zoom session, including student name and picture, prior to recording).

Students are not allowed to record without instructor permission.

Students are prohibited from recording class activities (including class lectures, office hours, advising sessions, group collaborations, 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.

Course Goals and Student Learning Objectives (LO)

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

- **LO1** 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.
- **LO2** Summarize important historical milestones in forensic science, the constituents and organization of crime labs, the contributions of natural sciences and the sub-disciplines of forensic science, analytical processes and procedures employed, and the types of evidence encountered.
- **LO3** Describe the roles of forensic scientists and investigative personnel, the duties they perform, and how they form collaborations to assist with legal inquiries.

- **LO4** Summarize the history of DNA profiling, principles of genetics concerning DNA, Mendelian inheritance, STRs, alleles, genotypic and phenotypic expressions of genes, and PCR.
- **LO5** Apply the concepts and principles of the scientific method to simulated forensic laboratory practicals, by formulating hypotheses, analyzing data collected, critically assessing the results and arriving at conclusions.
- **LO6** Communicate an accurate representation of forensic science, the methods employed in various contexts, limitations of the field, the challenges faced and its achievements.

Required Texts/Readings

Bell, S. (2019). *Forensic Science: An Introduction to Scientific and Investigative Techniques*, 5/E. CRC Press/Taylor & Francis. ISBN-13: 978-1-138-04812-6

- **NOTE:**
 - This textbook is [FREELY available](#) in e-format on the SJSU library webpage.
 - This textbook also serves as required reading for FS 162.
- Additional required readings, tutorials, videos, and links will be posted on Canvas.

Assignments

1. **Exams** (40%): There will be two exams in this class (one for each module). Format will include multiple choice, matching, true/false, and short answer. (LO1-5)
2. **Chapter Review Questions/Worksheets (Group and/or individual), and Case Project & Presentation** (20%): Chapter review questions can be found at the end of each chapter. Upload your responses to Canvas by the due date. Worksheets on videos, or other topics may also be distributed. (LO1-5). Each student will create and upload a PowerPoint Presentation on one criminal case in which forensic evidence played a critical role. Additional assignment details will be posted on Canvas. (LO1-3, 5, and 6)
3. **Individual and Group Labs** (30%): The purpose of performing laboratory experiments is to put into practice, and gain an understanding of, the principles that govern the scientific approach. Generally speaking, the scientific method is a series of steps that are followed in order to execute well-thought-out, and methodical investigations of various phenomena as they occur in the natural world. A question is asked about a particular circumstance or event, for which it is subjected to rigorous testing to generate a conclusion. (LO1, LO2, LO5, and LO6)
4. **Participation and Peer Reviews** (10%): Students are responsible for taking charge of their learning and personal development. As part of the online learning process, they will be required to make thoughtful and meaningful contributions to online group activities and discussion boards. Students will be assessed on their abilities to actively and skilfully conceptualize various theories and principles as they relate to forensic science

and their subdisciplines. Students should be able to reflect on these concepts and apply them to various forensic questions, problems and activities.

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> | | |

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

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

Extra Credit

Extra credit opportunities may be available throughout the semester and will be used to augment your final grade up to **3%**. You may submit up to three extra credit assignments of your choosing. Each extra credit opportunity is given a weighted value of **10 marks**.

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. A professional organization is one that holds conferences and/or produces a periodic journal. This is not the same thing as an internship, job, or student organization; it is a professional *membership*.
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. **Portfolio**: Students may turn in a neat and organized 3-ring binder (portfolio) at the end of the semester containing all work completed in the class. Copies of group assignments are acceptable. This should be professional quality (for example, you would bring it to an interview to display your work).
4. **Read and critique a current journal article** from the forensic science discipline. Discuss its relevance to forensic science and how it contributes to the advancement the field.
5. **Upload proof of a submitted grant/scholarship application** and all the required paperwork (see the Justice Studies webpage for a list of scholarships). The grant or scholarship application may be for an external source. However, proof of submission must be uploaded along with the application package submitted.
6. **Redo and resubmit any three assignments OR lab reports**. However, changes **MUST** be reflected on the graded assignment containing the instructor's feedback using clearly colored text or highlighter to illustrate where corrections have been made. Failure to do so will warrant no change to the original grade assigned. (*Submit appropriately under Extra Credit or Assignment Re-do #).

Class Protocol and Policies

- All assignments are to be completed by their designated due dates. **Late work MAY NOT** be submitted. Assignments submitted thereafter will **NOT** be **accepted** and results in an **automatic fail unless extraordinary, documented circumstances** exist or a **doctor's note** is presented. **AVOID MISSING PRACTICALS** assignments! Make-up sessions may not be available. Should you know in advance of any extenuating circumstances that conflict with such sessions, it is your responsibility to inform your lecturer. The possibility for submitting an alternative assignment may be granted at discretion, but be advised that such undertaking will be quite demanding. If there is any doubt about the requirements for an assignment, or due dates/times, re-read the directions of the assignment and/or schedule. If your question(s) remains unanswered, contact your instructor for clarification.
- Class participation is expected. It is essential that you are prepared to complete all assigned work. Therefore, it is your responsibility to stay on top of your readings, complete assignments on time, and participate in online class discussions, activities and remote lab practicals. Lack of adequate participation *will* result in pop quizzes, which *will* count toward your final grade.

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 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 1st floor of [Clark Hall](#) and on the 2nd 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 (see [Student Computing Services](#) and equipment available on hand). 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 (see Information Technology's [Equipment Loaning](#) page).

Peer Connections

The Peer Connections main office is located in Room 600 in the Student Services Center. It provides assistance to 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. <https://www.sjsu.edu/peerconnections/index.php>

ACCESS (Academic Counseling Center for Excellence in the Social Sciences)

The Academic Counseling Center for Excellence in the Social Sciences (ACCESS) provides advising for undergraduate students majoring or wanting to major in programs offered in CoSS Departments. The center provides support services, such as advising for freshman, general education, and probation; planning for academic success and graduation; tutoring; and career counseling. The main office is located in Clark Hall, room CH 240. Typically, all CoSS students and students who would like to be in CoSS 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. However, due to COVID-19 restrictions, office hours are limited to virtual meetings (Monday to Thursdays 9:00am - 4:00pm) until further notice. Contact information: 408.924.5363 Website: <https://www.sjsu.edu/access/>

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/>

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](#) webpage.

Important Dates This Semester

University Calendar:

* <https://www.sjsu.edu/registrar/calendar/spring-2022.php>

Jan 26-Feb 14: Late Registration for Spring 2022. Registration via MySJSU starting after 7am

Feb 7: Last Day to Drop Without a "W" grade

Feb 14: Last Day to Add a Course, Submit Audit, Last Day to Request CR/NC

Apr 22: Last Day to Submit Late Drop/Withdrawal Request (see [Registrar Forms](#))

May 16: Last day of Instruction

May 18-25: Final Exams (see [Exam Schedule](#))

*Late add fees apply. See above website.

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.

Course Instructor

Dr. Shawna Bolton first attended the University of Toronto where she obtained her BA in Anthropology (major) and double minored in French and English. She then went on to complete an MSc in Criminal Justice with an advanced forensic anthropology interdiscipline at Radford University before earning her PhD in Forensic Sciences at the University of Wolverhampton in the UK. There, Dr. Bolton conducted preliminary research investigating the post mortem molecular properties of cartilage and its potential use as a forensic tool. Upon the completion of her doctorate, she has worked in partnership with Global Forensics and the University of Wolverhampton to prepare and provide academic and laboratory training to Rwandan National Police officers enrolled in an intensive forensic DNA and toxicology module. To date, she is teaching FS courses while providing students with fieldwork and laboratory internship experience through her on-going research involving cartilage degradation.

Tentative Course Schedule

Important Dates - *The schedule is subject to change at the lecturer's discretion. If ahead of schedule, further lectures may include topics such as underwater investigations, behavioral forensic science, and forensic nursing.*

| Week | Date | Discussion Topic (s) | Chapter Number |
|------|---------------|--|-----------------|
| 1 | 1/26 | Course Welcome and Introductions | Canvas Module 0 |
| 2 | 01/31 & 02/02 | <i>Justice and Science / Introduction to Forensic Science and History</i> Syllabus, Overview of Course <i>Role of Forensic Science at the Crime Scene & Physical Evidence (Origins, Types & Admissibility)</i> | 1 2, 3 |

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|----|---------------------|---|--|-----------------------------------|
| 3 | 02/07 & 02/09 | <i>Role of Forensic Science at the Crime Scene & Physical Evidence (Origins, Types & Admissibility)... Cont'd</i> | LAB 1: <i>Crime scene processing exercise</i> | 2, 3 |
| 4 | 02/14 & 02/16 | <i>Forensic Biology I: Detection and Identification of Biological Material</i> | | 9,4 |
| 5 | 02/21 & 02/23 | <i>Forensic Bio I (continued): Bloodstain Pattern Interpretation</i> | LAB 2: <i>Bloodstain Geometry</i> | 9,4 |
| 6 | 02/28 & 03/02 | <i>Forensic Biology II: Forensic DNA Analysis and CODIS</i> | | 10 |
| 7 | 03/07 & 03/09 | <i>The Forensic Examination of Trace Evidence: Hairs, Fibers, Paint, Glass and Soil</i> | | 17 |
| 8 | 03/14 & 03/16 | <i>Impression Evidence: Firearms and Tool Marks / Tread Impressions (Footwear/Tire)</i> | <i>Mid-Term Exam</i> | 15,16 1,2,3, 4,9,10 17 |
| 9 | 03/21 & 03/23 | <i>Impression Evidence: Firearms and Tool Marks / Tread Impressions (Footwear/Tire)...Continued</i> | LAB 3: <i>Comparative Analysis of Evidence</i> | 15, 16 |
| 10 | 03/28 & 03/30 | <i>Spring Recess (March 28-April 1) March 31 – Cesar Chavez Day (Campus Closed)</i> | | |
| 11 | 04/04 & 04/06 | <i>Science of Fingerprints: Development and Comparison</i> | LAB 4: <i>Fingerprint Processing</i> | 14 |
| 12 | 04/11 & 04/13 | <i>Forensic Chemistry: Toxicology, Drug Analysis and Analysis of Fire Debris/Explosives</i> | | 6, 11.1, 11.4, 11.5, 11.6), 12 |
| 13 | 04/18 & 04/20 | <i>Forensic Entomology</i> | <i>Human Osteology</i> | 8 |
| 14 | 04/25 & 04/27 | <i>Forensic Anthropology</i> | LAB 5: <i>Processing Skeletal Remains and Completing Inventory Records</i> | 7 |
| 15 | 05/02 & 05/04 | LAB 5: <i>Processing Skeletal Remains and Completing Inventory Records</i> | | 7 |
| 16 | 05/09 & 05/11 | <i>Digital Evidence</i> | Lab 6: <i>Digital Evidence (Mini-Lab)</i> | 20 |

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|-------------------|-------------------------------|--|------------------------|
| 17 | 05/16 | <i>Underwater Investigations Forensic Behavioral Science</i> | TBA, 21 |
| | | <i>Topics in FS - Expert Witness Testimony/ Bias/ Laboratory Accreditation/ Error &Future of FS; Final Exam Review</i> | TBA |
| Final Exam | 5/19 (7:45p-10:00p) | <i>Final – Non-Cumulative Exam (Theory and Practical)</i> Refer to link below for exam dates and times. https://www.sjsu.edu/classes/final-exam-schedule/spring-2022.php | 6, 7, 10-15, 21 |

* Topic(s) subject to change. Possible guest speaker(s). Students are responsible for taking detailed notes as they will be tested on the subject matter.