



**Department of Justice Studies**  
**FS 11 Survey of Forensic Science,**  
**CRN 25104, Spring 2018**

<b>Instructor</b>	Dr. Shawna Bolton
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<b>Office Location and Hours</b>	MacQuarrie Hall 511 (Move to Health Building rm 210A TBA) Drop in: T & TH 11:30a-12:30p and 1:30p-2:30p <b>OR</b> by appointment
<b>Canvas Course Website</b>	<a href="https://sjsu.instructure.com/courses/1254947">https://sjsu.instructure.com/courses/1254947</a> <a href="#">Login using your Tower ID Card and Password</a> → Courses → FS 11
<b>Lecture Days/Time</b>	Tuesdays & Thursdays, 4:30pm-5:45pm
<b>Practical Location</b>	Practicals will generally take place in the Health Building (C4 on SJSU Map. Room TBA) unless otherwise stated.
<b>Prerequisites</b>	None
<b>FS Library Liaison</b>	Silke Higgins <a href="mailto:silke.higgins@sjsu.edu">silke.higgins@sjsu.edu</a>
<b>FS Lib Guide</b>	<a href="http://libguides.sjsu.edu/content.php?pid=57768&amp;sid=2450175">http://libguides.sjsu.edu/content.php?pid=57768&amp;sid=2450175</a>
<b>FS Program Website</b>	<a href="http://www.sjsu.edu/justicestudies/degrees/fs-program/">http://www.sjsu.edu/justicestudies/degrees/fs-program/</a>

### 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.

## 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

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: 9781439853832

- **NOTE:** 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. Case Project & Presentation (10%): 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. Chapter Review Questions/Worksheets (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)

### 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		
A- (minus)	90-93.9	C- (minus)	70-73.9		
B+ (plus)	87-89.9	D+ (plus)	67-69.9		
B	84-86.9	D	64-66.9		
B-	80-83.9	D- (minus)	60-63.9		

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 Justice Studies major and minor coursework, and desirable for students enrolled in the Forensic Science majors and/or minor.**

### 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. 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).
3. 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.
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.

## **Class Protocol and Policies**

- Late work may be submitted up to one week without penalty. Subsequently, a penalty of 5% per day for a maximum of 5 days, weekends included will apply. 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 lab practicals. 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 lecturer for clarification.
- Attendance and class participation is expected. It is essential that you come to class prepared. Therefore, it is your responsibility to stay on top of your readings, complete assignments on time, and participate in class discussions. Lack of adequate participation *will* result in pop quizzes, which *will* count toward your final grade.
- The use of cell phones is NOT PERMITTED during class. Students caught using their phone will be asked to surrender it for the remainder of the lecture or excused from the class. Laptops are permitted for note-taking only.

## **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.

## **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**

<http://www.sjsu.edu/registrar/calendar/2182/index.html>

**Jan 24-Feb12:** Late Registration for Spring 2018. Registration via MySJSU starting after 7am

**Feb 5:** Last Day to Drop Without a "W" grade

**Feb 12:** Last Day to Add a Course, Last Day to Request CR/NC

**Apr 25:** Last Day to Submit Late Drop/Withdrawal Request <http://www.sjsu.edu/aars/forms/>

**May 14:** Last day of Instruction

**May 16-18, 21-22:** Final Exams (see [Exam Schedule](#))

## 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

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 and JS courses while continuing her research into cartilage degradation.

### Tentative Course Schedule

**Important Dates** - *The schedule is subject to change at the lecturer's discretion.*

Week	Date	Discussion Topic (s)		Chapter Number
1	01/25	<b><i>Justice and Science / Introduction to Forensic Science and History</i></b> Handouts, Syllabus, Overview of Course		1
2	01/30 & 02/01	<b><i>Role of Forensic Science at the Crime Scene &amp; Physical Evidence (Origins, Types &amp; Admissibility)</i></b>	Crime scene processing exercise / <b><u>JBR - Case Review</u></b>	2, 3
3	02/06 & 02/08			

4	02/13 & 02/15	<b>Forensic Biology I: Detection and Identification of Biological Material</b>		4, 8
5	02/20 & 02/22	<b>Forensic Bio I (continued): Bloodstain Pattern Interpretation</b>	<b>LAB 1: Screening Bloodstain Evidence</b>	4,8
6	02/27 & 03/01	<b>Forensic Biology II: Forensic DNA Analysis and CODIS</b>		9
7	03/06 & 03/08	<b>The Forensic Examination of Trace Evidence: Hairs, Fibers, Paint, Glass and Soil</b>		16
8	03/13 & 03/15	<b>Science of Fingerprints: Development and Comparison</b>	<b>LAB 2: Fingerprint Processing</b>	13
9	03/20	<b>Mid-Term Exam</b>		1,2,3,4, 8,9,16
9	03/22	<b>Impression Evidence: Firearms and Tool Marks / Tread Impressions (Footwear/Tire)</b>		14, 15
10	03/27 & 03/29	Spring Recess - no classes Friday, March 30 - Cesar Chavez Day - campus closed		
11	04/03 & 04/05	<b>Impression Evidence: Firearms and Tool Marks / Tread Impressions...Continued</b>	<b>LAB 3: Comparative Analysis of Evidence</b>	14, 15
12	04/10 & 04/12	<b>Forensic Chemistry: Toxicology, Drug Analysis and Analysis of Fire Debris/Explosives</b>		10, 11, 12

<b>13</b>	04/17 & 04/19	<i>Forensic Entomology</i>		7
<b>14</b>	04/24 & 04/26	<i>Human Osteology/Forensic Anthropology</i>		6
<b>15</b>	05/01 & 05/03	<i>Lab 4: Processing Skeletal Remains</i>	No class on Thursday. Happy Thanksgiving!	6
<b>16</b>	05/08 & 05/10	<i>Topics in FS - Expert Witness Testimony/ Bias/ Laboratory Accreditation/ Error &amp; Future of FS; Final Exam Review</i>		21
<b>Final Exam</b>	05/17	<i>Final – Cumulative Exam Theory and Practical</i>		