

FORENSIC SCIENCE PROGRAM STUDENT HANDBOOK

SAN JOSE STATE UNIVERSITY
JUSTICE STUDIES DEPARTMENT

Compiled by the Faculty and Students of the Forensic Science Program





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Hello Forensic Science Majors and Forensic Studies Minors, and welcome to SJSU!

So You Want to Be a Forensic Scientist!

Many people's idea of what it means to be a forensic scientist comes straight from television. However, real forensic work is nothing like tv. It's very meticulous and detailed, and no one wears their club clothes to work. Forensic scientists and CSIs do not carry guns in real life, nor do they arrest people or interrogate them. Not every case is a fascinating puzzle either. If these are your reasons for studying forensic science, you might want to rethink them.

A forensic scientist is, first, *a scientist*. This means s/he maintains an objective point of view and an open and critical mind. A scientist is ethical, and works only for the truth, not toward any agenda. Forensic scientists (also known as criminalists) work primarily in the crime lab and adhere to established laboratory protocols. Depending on the size of the department or agency, and the amount of crime in the area, the forensic scientist might also process crime scenes, but more often those tasks are handled by crime scene investigators who are specially trained to recognize, document, and preserve evidence at a scene. CSIs do not work in crime labs. (If CSI is your main interest, skip to the Forensic Studies Minor below.)

Sections of a crime lab may include Biology/DNA, Trace Evidence, Drug Evidence, Latent Fingerprints, Firearms Examination, and Questioned Documents. Some labs have more sections, some have fewer.

For more information on the many sub-disciplines of forensic science, please visit:

<http://www.aafs.org/students/choosing-a-career/>

Forensic Science at SJSU

The most important forms you will need to navigate your way through the FS major is the **major form and roadmap**. The major form lists all the required coursework of the major. The roadmap shows the suggested sequence of courses, and the quickest path to graduation. ***Fill out the front of the major form as you take courses, and bring that form with you to all advising appointments.***

The FS biology and chemistry major forms and roadmaps can be found here:

<http://www.sjsu.edu/justicestudies/degrees/undergraduate-degrees/bs-forensic-science/index.html>

How to Apply to the Forensic Science Major

The Forensic Science major is impacted, which means that you cannot simply declare the major, but must actually apply. Assemble your application paperwork and turn it in to the Justice Studies Office (MacQuarrie 524). There are two windows during which you may submit application materials: fall semester Oct 15-31, or spring semester March 1-15.



Declaring Forensic Science as your major will be competitive. You should strive for an overall minimum GPA of 3.0 in order to have a strong chance of qualifying. To strengthen your chances of acceptance, join FSS, and *do more than meet the minimum* requirements (below).

Minimum Requirements for Applying

Take at least two of the following courses at SJSU within 60 units of arriving at SJSU:

- Course from GE Area 3 (or pass the WST)
- FS 11 Survey of Forensic Science
- Stat 95 Elementary Statistics
- GE: Any GE course
- Biol 30 or Chem 1A

Application Packet

1. Change of Major/Minor Form (<http://www.sjsu.edu/registrar/academic-records/change-of-major-minor.php>)
2. Copies of Unofficial Transcripts (community college, other universities, SJSU)
3. Letter of Intent (usually about half a page long, explaining your reason for declaring or changing your major to FS)
4. Graduation Plan (the coursework remaining before graduation, in the semester and year you intend you take it). The graduation plan is not a contract, which means it may change, but what you turn in will show us that you understand how many courses you will need and in how many semesters you should finish your degree. Use the FS roadmap as a guide, found on the back of the appropriate major form at the bottom of this page:
<http://www.sjsu.edu/justicestudies/degrees/undergraduate-degrees/bs-forensic-science/index.html>

Have a Back-Up Plan

If you are not accepted the first time you apply, you should continue taking qualifying courses, move your GPA up, and reapply the next window. Or, look for a second field outside of Forensic Science that really interests you and start taking courses in that field so that you can switch to that major in case you do not qualify for Forensic Science.

Questions

If you have any questions regarding your application, or the major, please contact a forensic science faculty member.

Dr. Mark Barash (mark.barash@sjsu.edu)

Dr. Shawna Bolton (shawna.bolton@sjsu.edu)

Professor Mary Juno (mary.juno@sjsu.edu)

Dr. Jodie Warren (jodie.warren@sjsu.edu)

Dr. Bryce Westlake (bryce.westlake@sjsu.edu)



Requirements of the FS Major Biology Concentration

Lower Division Requirements (39)

CHEM 1A (5) BIOL 30 (4)
CHEM 1B (5) BIOL 31 (4)
CHEM 55 & 55L (4) STAT 95 (3)
PHYS 2A (4) FS 11 (3)
PHYS 2B (4)
MATH 30 or 30P (3)

Upper Division Requirements (35)

CHEM 112A (3) FS 100W (3)
CHEM 112B (3) JS 114 (3)
CHEM 113A (2) FS 161 (3)
CHEM 130A or 135 (4) FS 162 (5)
BIOL 115 (3) FS 167 (3)
FS 169 (3)

Elective Courses in the Biology Concentration

FS 106, FS 160, FS 163, FS 164, FS 165, FS 166, FS 168, FS 170, FS 171, ANTH 157, JS 143, JS 161, JS 180, JS 181, JS 184, JS 185*, BIOL 116, BIOL 117, BIOL 118, BIOL 123 A & B, BIOL 124, BIOL 125, BIOL 135A, BIOL 135B, BIOL 135L, BIOL 137, BIOL 145, BIOL 145L, BIOL 165, CHEM 120S, MATH 031, MICR 101, PSYC 110, PSYC 129, PSYC 153. *Other courses may also be utilized with advisor approval.*

**JS 185 topic must be forensic science related and approved by advisor.*

Requirements of the FS Major Chemistry Concentration

Lower Division Requirements (35)

CHEM 1A (5) BIOL 30 (4)
CHEM 1B (5) STAT 95 (3)
CHEM 55 & 55L (4) MATH 30 or 30P (3)
PHYS 2A (4) FS 11 (3)
PHYS 2B (4)

Upper Division Requirements (37)

CHEM 112A (3) FS 100W (3)
CHEM 112B (3) JS 114 (3)
CHEM 113A (2) FS 161 (5)
CHEM 130A or 135 (4) FS 162 (3)
CHEM 160 (4) FS 169 (3)
CHEM 145 (3)
CHEM 155 (4)

Elective Courses in the Chemistry Concentration

FS 160, FS 163, FS 164, FS 165, FS 166, FS 167, FS 168, FS 170, FS 171, ANTH 157, JS 106, JS 143, JS 161, JS 180, JS 181, JS 185*, BIOL 31, BIOL 6, BIOL 115, BIOL 116, BIOL 117, BIOL 118, BIOL 123 A & B, BIOL 124, BIOL 125, BIOL 135A, BIOL 135B, BIOL 135L, BIOL 137, BIOL 145, BIOL 145L, BIOL 165, CHEM 101, CHEM 118, CHEM 131A, CHEM 145L, CHEM 173, MATH 031, PSYC 110, PSYC 129, PSYC 153. *Other courses may also be utilized with advisor approval.*

**JS 185 topic must be forensic science related and approved by advisor.*



The Minor in Forensic Studies

The Minor in Forensic Studies is primarily designed for students interested in crime scene investigation, and its purpose is to provide formal academic training in this area. Topics include evaluation, documentation, and preservation of physical evidence; the requirements of the forensic laboratory; forensic analytical processes and methods; crime scene and evidence photography; fingerprints; scientific thinking; and probative value of evidence in court. The minor allows students to take courses in their area of interest (Forensic Science) without the heavy chemistry and biology course load of the major. **Note:** *A student cannot major in forensic science **and** minor in forensic studies, however, both core and elective courses are open to both minors and majors.*

This minor has practical applications in the areas of law, law enforcement, engineering, computer science, accounting, chemistry, biology, nursing, medicine, psychology, anthropology, and photography. The minor provides a potentially useful credential for students pursuing careers or scholarship in all of these fields. A few examples: Anthropology majors could use their Forensic Studies training when excavating clandestine gravesites and documenting human remains; Justice Studies majors could apply their Forensic Studies training when evaluating physical evidence in police work and court rooms; and Nursing majors with a Minor in Forensic Studies could use the credential in the fairly modern field of Forensic Nursing, in which nurses play a major role documenting injuries and collecting forensic evidence in hospitals.

Note: *Students interested in working in a crime lab should **MAJOR** in **FORENSIC SCIENCE**.*

Note: *Students wishing to work in **crime scene investigation** should take FS 163 and FS 164 as their electives.*

Required Coursework (9 units)

FS 11 Survey of Forensic Science (3)
FS 161 Crime Scene Investigation (3)
FS 162 Forensic Science Applications (3)

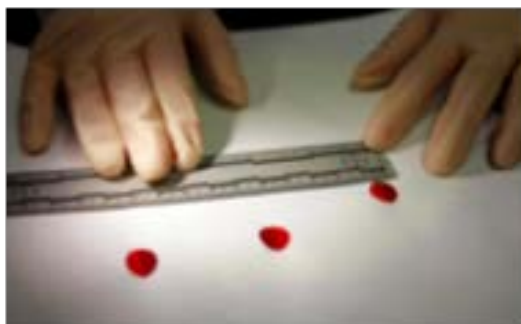
Elective Coursework (choose 6 units)

FS 160 Special Topics in FS (1-5)
FS 163 Fingerprint Science (3)
FS 164 Crime Scene/Evidence Photography (3)
FS 165 Forensic Biometrics (3)
FS 170 Forensic Science & Human Rights (3)
FS 171 Forensic Criminology (3)
JS 143 Criminal Evidence & Procedure (3)
JS 161 Introduction to Cybercrime (3)
JS 171 Forensic Criminology (3)
ANTH 157 Forensic Anthropology (3)
PHOT 110 Black & White Photography (3)
PSYC 110 Abnormal Psychology (3)
PSYC 129 Neuroscience (3)
PSYC 153 Psychology of the Courtroom (3)



How to Declare a Minor

1. Fill out the appropriate Change of Major/Minor Form (< / > 90 units)
<http://www.sjsu.edu/registrar/academic-records/change-of-major-minor.php>
2. Fill out the FS Minor Graduation Form <http://www.sjsu.edu/justicestudies/for-students/student-resources/forms/index.html>
3. Bring these to the Minor Coordinator (Mary Juno, 127 Health Building) along with an unofficial copy of your transcripts and any additional required paperwork (the list of required paperwork can be found on the change of major/minor form, and varies with the <90 or >90 unit form).



GENERAL ADVISING

Advice for Transfer Students

Meet with a forensic science faculty member, and consult the appropriate roadmap (Chem or Bio). Check off the courses you have already taken and start with what's left, beginning with the lower division requirements. Essentially, you are jumping into the roadmap at some place other than the beginning, but you can and should still follow it as closely as possible. Take 3 required major courses every semester, and fill in remaining units with GE. *Note: FS majors do not need to take GE classes in Area B.*

You might need to visit the SJSU Articulation website <http://info.sjsu.edu/home/artic.html> to determine which classes from other colleges articulate with which classes at SJSU.

Advice for Incoming Freshmen

Adhere to the roadmap which is page 2 of your major form. It is a common mistake for students to think they should “get GE courses out of the way first,” before beginning the major. However, doing this will add up to 2 years to your time at SJSU. Instead, take 2 or 3 required major courses every semester, and fill in remaining units with GE. *Note: FS majors do not need to take GE classes in Area B.*

Suggested courses for Semester 1

FS 11
Chem 1A (or Chem 30 if you need a prep course)

Suggested courses for Semester 2

Math 30 or 30P
Chem 1B



Stat 95
+1 or 2 GE courses
TOTAL ~15 units

Biol 30
+1 or 2 GE courses
TOTAL ~15 units

Everyone

1. Meet with your advisor at least once a year to make sure you are on track and to get updates on the major.
2. Join the *Forensic Science Students* group. You can find them on Facebook or email them directly at sjsu.fss@gmail.com for more information. The group meets biweekly every semester, and provides a fun way to network with FS peers and professionals.

Forensic Science Faculty and Advisors

Dr. Mark Barash (mark.barash@sjsu.edu)
Dr. Shawna Bolton (shawna.bolton@sjsu.edu)
Professor Mary Juno (mary.juno@sjsu.edu)
Dr. Jodie Warren (jodie.warren@sjsu.edu)
Dr. Bryce Westlake (bryce.westlake@sjsu.edu)

Justice Studies Main Office
MacQuarrie Hall 524

CHHS Student Success Center
(drop-in GE advising)
MacQuarrie Hall 533 & bottom floor of Health Building



Internships and Research

As of Fall 2016, forensic science majors must complete either an internship or a substantial research project.

Internship

The current internship coordinator is Dr. Bryce Westlake. Contact him (bryce.westlake@sjsu.edu) for a list of FS internship opportunities. You may also contact an agency directly to apply for or set up an internship, though it must be approved by the internship coordinator before you begin the actual internship.

Research

There are numerous opportunities to conduct research at a university. Contact your professors directly to inquire about new or ongoing opportunities.

Themis

If you prefer, you may join Themis as an associate editor for one semester in place of the internship or research project. See "Themis Journal" below for details.

Student and Professional Organizations

Forensic Science Students (FSS) <https://sites.google.com/site/forensicsciencestudents/>

FSS is comprised of students who share an interest in forensic science. You do not need to be a FS major or minor to join this group.

Alpha Phi Sigma (APS) <https://www.alphaphisigmasjsu.org/>

APS is the Justice Studies honor society.

American Academy of Forensic Science (AAFS) www.aafs.org

The American Academy of Forensic Sciences is a multi-disciplinary professional organization that provides leadership to advance science and its application to the legal system. The objectives of the Academy are to promote professionalism, integrity, competency, education, foster research, improve practice, and encourage collaboration in the forensic sciences. AAFS has an annual meeting, posts employment and education opportunities on its website, and publishes the *Journal of Forensic Sciences*.

California Association of Criminalistics (CAC) <https://www.cacnews.org/>

CAC is a California-based organization for professionals working in the field of Criminalistics. CAC strives to foster an exchange of ideas and information, and to encourage friendship and cooperation among laboratory personnel.

International Association for Identification (IAI) <https://www.theiai.org/>



The International Association for Identification is the largest forensic organization in the world. It was originally formed as the "International Association for Criminal Identification" in October 1915 in Oakland, CA. Through the years it has grown into an educational and certification body with over 6,000 members worldwide. The association has regional divisions, annual meetings, and publishes the *Journal of Forensic Identification*.

California State Division of the IAI (CSDIAI) <https://www.csdiainet/>

Themis Journal

Themis: Research Journal of Justice Studies and Forensic Science

Themis is a professional-quality, peer-reviewed academic journal, publishing SJSU student research in justice studies and forensic science. The journal is run entirely by students, and publishes only student papers. <http://www.sjsu.edu/justicestudies/our-department/publications/themis/>

Annual Call for Papers

Themis seeks original submissions from undergraduate and graduate students at SJSU. Students from any major may submit, but papers must be topically related to justice, injustice, human rights, criminal justice, criminology, law, law enforcement, philosophy of law, criminal or forensic psychology, neuroscience, or any of the forensic sciences. Selection for publication is competitive. Students may not submit more than two papers per volume, and paper length is limited to 30 pages, including references. Social science papers must be in APA format. **The deadline for submission is Jan 31.**

Annual Call for Editors

The managing editor and cast of associate editors changes with every volume. *Themis* runs as a 3-unit upper division elective class every spring. The class meets twice in person, and the rest of the work is completed on Canvas. *Themis* seeks dedicated students to edit its next volume (published annually in May). Student editors select papers for publication; communicate with authors; edit accepted papers for content, writing mechanics, and formatting; lay out the journal for printing; edit and approve proofs; and distribute printed journal to authors.

Benefits: Students are listed as editors in the journal, and gain experience in all steps of editing and publishing a professional-quality, academic journal.

Themis is published in hardcopy every spring, and is also available electronically and hosted by Digital Commons/SJSU Scholarworks. <https://scholarworks.sjsu.edu/themis/>



Frequently Asked Questions

Q. *What is the difference between the biology and chemistry concentrations?*

- A. The lower division coursework for biology and chemistry is virtually identical. The concentrations diverge at the upper division level, when biology students focus on genetics and DNA, and chemistry students focus on instrumental analysis and physical chemistry. A forensic biologist typically works in the DNA section of a crime lab. The work consists primarily of recognizing and typing biological stains, and using instruments and methods such as PCR and genetic analyzers to obtain DNA profiles. Forensic biologists take copious notes as they work, write detailed reports, and testify in court regarding their findings. A forensic chemist typically works in the drug, trace evidence, or firearms section of the lab. The work consists of using instruments such as microscopes, GC-MS, and FTIR to identify unknown materials. Forensic chemists also take copious notes as they work, write detailed reports, and testify in court regarding their findings.

Q. *Where do I go for major advising?*

- A. Students are assigned by their last name to an advisor. Look for the posted sign on the JS Main Office door (MacQuarrie 524) for your assigned advisor.

Q. *Where do I go for GE advising?*

- A. The CHHS Student Success Center (533 MacQuarrie and bottom floor of Health Building) has drop-in and peer GE advising. Advising is also available at the Student Services Center (10th St Garage).

Q. *I'm nervous about taking Chem 1A. How should I prepare?*

- A. If high school chemistry is a distant memory, and/or if you did not do well in it, you are likely not prepared for Chem 1A. Take Chem 10 or Chem 30A first, *in your first semester* at SJSU. Take Chem 1A the following semester, as it is the prerequisite for nearly all other science courses in the major. You might also take a chem workshop, and/or join a study group to increase your chances of success.

Q. *What should I do if I can't get into a required class?*

- A. Show up on the first day of the class and see if there is room. Sometimes instructors add more students if some have dropped or don't show up. Or, try another section. Or, take it over the summer.

Q. *I'm behind in my coursework; what can I do to catch up?*

- A. Take courses over the summer or winter break. You can take many lower division GE and major courses at a community college, or upper division courses at SJSU or other CSU. Make sure the course you are taking elsewhere articulates with the SJSU requirement.
<http://transfer.sjsu.edu/>

Q. *My writing skills are not at the college level. What should I do?*



- A. The Writing Center (Clark Hall 126) offers tutoring and workshops to help you with your writing. Do not wait until the end of the semester to make an appointment; that is usually the Center's busiest time and they might not have any appointments available. If you are serious about improving your writing, *go to the Writing Center every week.*

<http://www.sjsu.edu/writingcenter/>

If you need remedial writing instruction, consider taking HA 96 or LLD instead of Eng 1A:
http://www.sjsu.edu/english/comp/stretchprogram/stretch_for_students/Stretch_English_Brochure_web.pdf

Q. *I failed 100W. What should I do?*

- A. If you failed the course because you were not academically prepared for the level of difficulty, then do not immediately re-register in 100W. Use the semester after you failed to improve your writing skills. Attend a Writing Center workshop or tutoring session *every week*, and register for 100W the following semester. <http://www.sjsu.edu/writingcenter/>

Q. *When should I take the Calculus Placement Exam (CPE)?*

- A. If you had four years of high school math, you are probably prepared for this exam. You should register for this test the first semester you are at SJSU. If you have been out of high school for awhile, or are not prepared for calculus, take Math 19 (precalculus) first.
<http://www.sjsu.edu/math/calculus/cpedatetimes/>

Q. *When should I take the WST?*

- A. Register for this test after you complete GE Area A3. This is usually the fall or spring of sophomore year. Take 100W in the fall or spring of your junior year.
<http://testing.sjsu.edu/wst/>

Q. *Do you recommend any courses to fulfill GE requirements?*

- A. We strongly recommend Phil 57 for GE Area A3. Otherwise, GE courses are pretty much up to you. Take the courses you find most interesting. Phil 133 and Phil 160 are electives in both the FS Biology and FS Chemistry majors, and they also fulfill SJSU Studies areas R and V. If you want to double-count courses, consider taking one or both of them to fulfill both elective and GE requirements.

Q. *I want to be a crime scene investigator. Should I major in FS or minor in it?*

- A. A minor in FS will prepare you to be a crime scene investigator if you take FS 163 and FS 164 as your minor electives. However, as a civilian crime scene investigator, there are few opportunities for change or advancement. In other words, you would start your career as a CSI and end it as a CSI. If you believe that you will want to do other things in your career, then the major in FS is more appropriate because, with that degree, you will not only be able to work as a CSI, but you will also be qualified to work in a crime lab if you desire to. In short, the major prepares you for both crime lab *and* crime scene work, and the minor prepares you only for crime scene work



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