

BIOL 358
Forensic genetics: Math matters
Fall 2019

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|---------------|-------------------------------|------------|------------------------|
| Instructor: | Rori Rohlfs | SA: | Chris Ramirez |
| Office: | HH 762 | Email: | cramir14@mail.sfsu.edu |
| Email: | rrohlfs@sfsu.edu | Lab Hours: | Thurs 3:30-6:30pm |
| Office Hours: | Tues 2-3:30pm, Thurs 3:30-4pm | | |

Lab: T,Th 9:30-10:45 in SCI 249
Class: T,Th 11:00-12:15 in HH 108

Course intended for biology, chemistry, math, and computer science majors. However, other majors are very welcome as diverse perspectives enrich the class.

Pre-requisites: BIOL 230 with a C- or better and Math 199, or consent of instructor

Fulfills following degree requirements

- a quantitative course requirement for general biology, CMB, microbiology, and physiology majors (as an alternative to calc II, for example)
- an upper division laboratory requirement for all majors except physiology
- an upper division elective in any biology major

Forensic genetics: Math matters addresses the intersection of statistics, genetics, forensics, and public policy. The goal of this course is for us to use statistical tools to critically investigate questions in forensic genetics, articulating the connection between technical decisions and social impact.

Course culture

This course aims to offer a joyful, meaningful, and empowering experience to every participant; we will build that rich experience together by devoting our strongest available effort to the class. You will be challenged and supported. Please be prepared to take an active, critical, patient, and generous role in your own learning and that of your classmates.

- Formulating ideas or questions and sharing them in class is highly encouraged as part of a respectful dialogue.
- Students who find it difficult to speak up in class will challenge themselves to move up, while students who find it easy to speak up in class will challenge themselves to move back (move-up, move-back).
- Students are encouraged to interrupt class with questions, especially clarifying questions.
- To cultivate a classroom active learning environment, we will all keep our attention focused on the material. This means no off-topic cell phone or computer usage during class.
- Students are encouraged to seek out additional information through resources like Wikipedia, YouTube, etc.

Accessibility

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu).

If your learning experience can be improved by an accommodation, please talk to me so your needs can be met.

Getting help

I am really excited to help you learn about forensic genetics! Please don't hesitate to visit office hours to work through challenging concepts or bounce ideas.

You yourselves are an excellent resource. I strongly encourage you to exchange contact information with each other and set up regular study group meetings.

Course rhythm

| day | meetings | assignments | support |
|----------|------------|----------------------------|--------------------------------------|
| Tuesday | lab, class | lab report due | Rori's office hours |
| Thursday | lab, class | quiz prep, article reading | Rori's office hours, Chris lab hours |

Assignments

Lab reports

Lab reports require creativity and will be graded based on accuracy out of 100 points. Of the 9 reports due through the semester, one grade will be dropped. Late lab reports are strictly not accepted. If our grading capacity is limited, lab report grades will be based on a subset of sections from the lab report.

Lab quizzes

Lab quizzes will be given at the beginning of each Thursday lab after a 15 minute Q&A. Grading will be based on accuracy out of ten points. Of the ten quizzes, two grades will be dropped. There are strictly no make-up or late quizzes. If our grading capacity is limited, quiz grades will be based on a subset of problems from the quiz.

Participation

Participation is based on your in-class discussions and problem solving work in solo, pair, and group activities.

Article discussions

We will discuss a forensics media article for 15-20 minutes each Thursday. A random student will be chosen (via the candy bowl method) to lead the discussion by providing a 1-minute synopsis of the article and 3 questions to stimulate conversation. Rori will only observe the discussion (*i.e.* not talk) for the first ten minutes.

Research project

The last few weeks of the semester, you will propose, carry out, and report on your own forensic genetics research project based on scientific questions you develop through the semester. The last class will culminate with a scientific poster session where students will present their work to an external audience and perform peer evaluations on 12 December.

Policy proposal

You will identify an undesirable social outcome associated with forensic genetics, and propose a policy to govern technical decisions that will improve the social outcome. Students will present their proposals to the class and community stake holders on 7 November.

Extra credit

Help me understand pop culture! Find a <5 minute video clip from a series, movie, or newscast that illustrates an example of a concept we talk about in class. Write a paragraph (max 300 words) explaining how the concept was applied and evaluating the scientific accuracy. Full credit adds 1% to your final grade in the class. You can submit up to three through the semester.

Grading

| | | | |
|--------------------|-----|-----|---------|
| | | A | 93-100% |
| | | A- | 90-93% |
| | | B+ | 87-90% |
| | | B | 83-87% |
| | | B- | 80-83% |
| | | C+ | 77-80% |
| | | ... | ... |
| Lab reports | 30% | | |
| Lab skills quizzes | 10% | | |
| Participation | 20% | | |
| Policy proposal | 15% | | |
| Research project | 25% | | |

Your grades will be available for you to see online through iLearn. Grades will be assigned on the scale above, however, if some assignments produce unexpectedly low scores, the scale may be lowered.

Late and makeup policies

Assignments are due at the beginning of class on the stated day. Late assignments are strictly not accepted.

There will be no make up presentations. If you will miss a presentation day for a scheduled event, talk to Rori by 7 September.

Answer keys and rubrics will be posted for all graded assignments. Upon comparing your graded assignment to the answer key or rubric, if you have concerns about the grading, turn in your assignment with an attached page explaining specifically where and how you may have been misgraded. Your assignment with regrade sheet are due one week after you receive them.

Words of wisdom from previous students

What advice would you give future students in this Forensic genetics: Math matters?

“Future students: don’t be afraid to ask for help, go to office hours, email your professor and TA, make friends, do the work, you’ll be fine.”

“Definitely spend time reviewing how each function works and do multiple test runs of the practice sheets before tackling the lab assignments.”

“Always ask your peers and your professor for help. I’m a very shy person and I can very stubborn to ask for help, but this class taught me to speak up and ask for help. I learned that I don’t have to do this alone and some of my peers are willing to help too.”

“Get an earlier start on your policy proposal and research project”

Accommodating religious holidays

The faculty of San Francisco State University shall make reasonable accommodations for students to observe religious holidays when such observances require students to be absent from class activities. It is the responsibility of the student to inform the instructors, in writing, about such holidays during the first two weeks of the class each semester. If such holidays occur during the first two weeks of the semester, the student must notify the instructor, in writing, at least three days before the date that he/ she will be absent. It is the responsibility of the instructor to make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. (SFSU Policy F00-212)

Cheating and plagiarism

I highly encourage you to work in groups and collaborate for this course. However, I expect all written assignments to be your own work (*i.e.* write it up solo). Any cheating or plagiarism (either 1) direct copying or loose paraphrasing of text from a published work or from an online source without appropriate referencing, or 2) use of another student’s work or ideas without appropriate attribution) will result in zero grades for all parties.

Academic calendar policy

The Academic Calendar can be found at <https://webapps.sfsu.edu/public/webcal/acadcalendar>. Faculty are required to provide the equivalent of 15 weeks of instruction. Final examinations are not part of the 15 weeks of instruction and cannot be given the last week of instruction. Use of the finals period by faculty is optional and can be used to replace lost time due to holidays, class cancellation by faculty, unexpected campus closures or fire alarm if not being used for final examinations. Please see the Academic Senate website at <http://senate.sfsu.edu> for more information on Senate policies.

Drop and withdrawal dates

16 September: Last day to add/drop classes. As a courtesy, please notify the instructor that you are dropping.

19 November: Students may withdrawal from a class in the case serious and compelling reasons with approval from the Instructor and Department Chair.

16 December: Students may withdrawal from a class in exceptional verified cases of accidents or serious illnesses with approval from the Instructor, Department Chair, and Associate Dean. Ordinarily, withdrawals in this category involve a total withdrawal from the University.

Student disclosures of sexual violence

SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Title IX Coordinator by completing the report form available at <http://titleix.sfsu.edu>, emailing vpsaem@sfsu.edu or calling 338-2032. To disclose any such violence confidentially, contact:

- The SAFE Place - (415) 338-2208; http://www.sfsu.edu/safe_plc/
- Counseling and Psychological Services Center - (415) 338-2208; <http://psyservs.sfsu.edu/>
- For more information on your rights and available resources: [<http://titleix.sfsu.edu>]