Probability and Statistics with Computing (MATH 324)

Dr. Luella Fu

T/Th 5-6:15 pm
Hensill Hall 113

Office: THH 947
Open Student Hours: T/Th 6:15 – 7:15
and 1st Sunday of each month 3-4 pm
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Who am I as your instructor?

Welcome to the class! My name is Luella Fu, and my pronouns are she, her, and hers. I am an assistant professor of Mathematics working on statistics for the kind of yes/no decisions that come up in finding fraud or genes associated with cancer. I especially encourage you to visit student hours for your questions, so that we can find ways that works best for you to learn the material.

What is this class about?

This class lays a base of knowledge that is useful for anyone who may work with data. Data often shows up when you don't expect it. It can be used to strengthen your point of view or to assess the outcomes of your experiments in science or the success of your apps in web development. Data retains qualities of the people and systems it comes from, and so we try to uncover those hidden qualities to better understand people and systems. A major difficulty in data is its randomness, so our course centers on modelling randomness (through probability models) and providing information (using descriptive and inferential statistics) despite randomness.

LEARNING OBJECTIVES

Students who actively participate in the course will be able to answer "How do you…"
☐ look at data?
☐ compute useful numbers from data and interpret their meaning?
☐ represent an outcome before it happens?
☐ model probabilities like those found in lotteries?
☐ reduce the chances of making mistakes when deciding yes/no?
☐ convey your level of certainty about your educated guess?

COURSE REQUIREMENTS

0. Calculus II prerequisite
1. Class participation   10%
2. HW Quizzes   20%
3. Computing Projects   20%
4. Midterm   25%
5. Final   25%

MATERIALS

1. iLearn (link)
2. R and R Studio (link)
3. Arkaive mobile app (link)
4. Jay L. Devore, *Probability and Statistics for Engineering and the Sciences*, any edition.
(I will use the 9th edition:
ebook $27.49,
hardcover $200.
 7th edition used hardcover: < $10.
I will post homework separately.)

TUTORING

1. LAC: https://lac.sfsu.edu/
2. PARC: https://carp.sfsu.edu/

HEALTH & ADVISING

- wellness.sfsu.edu
- http://basicneeds.sfsu.edu/
- COSE Student Success Center

FINAL EXAM:

Tuesday 12/18 4-6:15 pm

What will I need to do to be successful?

Statistics provides a way of thinking and there are a few core ideas it relies on. These concepts are the most important to understand. In class, we will try to focus on these concepts when we go through examples. So you are encouraged to attend class. If you find yourself doing calculations without seeing the idea behind them, please visit me, check the book, ask a question in the forum, visit the LAC or PARC, search YouTube for explanations or use any other method helpful for your learning.

What do I expect of you?

Research shows that when students learn from one another, they learn better. To give you this kind of learning experience, I encourage you to attend every class. Class work may not be made up due to the valuable nature of community collaboration and class participation, but if there are circumstances beyond your control, we may be able to discuss extra credit to support your learning in other ways. Deadlines are also firm but if you are sick, please scan and email your projects to me.

Above all, our ethical habits are important to maintain and develop because we carry them with us beyond school. I encourage you to work together on homework and for study, but I also expect you to communicate your solutions in your own words. It is not ethical or thoughtful to copy and paste others' work. You will also learn better if you try to explain to yourself the steps involved in solving each problem. I have student hours, the class has an online forum, and the university offers tutoring to help you when you get stuck.

What can you expect from me?

I welcome your questions in class and in student hours. I also appreciate comments about statistics in your own life. I know that timely feedback is important for your learning, so I will reply to your emails within 24 hours and do my best to complete grading in a timely fashion. I try to return assignments within two weeks.

How will I be graded? What kinds of assignments/exams are there in this class?

Our class offers many activities to make use of the different skills and learning styles we have. In class, you will see and hear me solve example problems, but you will also solve problems together in pairs. Doing these exercises gives you 5% of your participation points. You gain an additional 5% in participation points from regularly posting on our iLearn discussion forums, where I will have prompts you can answer or where you can ask or answer student questions. Homework also allows you to gain practice and confidence in solving problems outside of class, and you will get feedback about your understanding of these problems from me and each other on weekly quizzes. You will receive 5% of your quiz grade from attempting all homework and participating in peer feedback on quizzes. We will have 3 computing projects where you practice programming statistics, which is a good way to learn through doing. We will have a midterm to help prepare you for the final and a final that covers about 75% of the material from class.

Your cumulative grade at the end of the course will be a percent where roughly

93-100%	A
90-92%	A-
87-89%	B+
83-87%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
65-69%	D+
60-64%	D
54-60%	D-
0-53%	F

A tentative calendar with dates for homework, quizzes, midterms, and Sunday office hours is on iLearn.

DISABILITY ACCESS

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor early in the semester. 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/415-338-2472, video phone/415-335-7210) or by email (dprc@sfsu.edu).

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