Probability and Statistics I (MATH 440)

Luella Fu

T/Th 3:30-4:45 pm
Thornton Hall 409

Office: THH 947
Office Hours: W 2 - 3 pm; Th 6:15-7:15 pm
Number: (415) 338-1026
E-Mail: luella@sfsu.edu

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. Because I think general learning skills are useful for your life, my grading tends to reward the thoroughness of your efforts, your ability to learn from mistakes, and your effort to study. On the statistics side, I value your ability to interpret problems practically and connect concepts together by using earlier material to understand later material. I especially encourage you to ask for help early. This will aid your learning, help you succeed, and reduce your stress.

What is this class about?

This class is the foundational class at SFSU for further study of statistics and probability. It introduces you to the most important ideas and machinery in probability and statistics. The main concepts of statistics concern probabilities, which we focus on here. Many learners find this to be the most challenging part of upper-division statistics, so be ready to put in effort. You will see proofs, and you will use calculus. At the end of the term, we'll be able to prove the most fundamental theorem of statistics.

LEARNING OBJECTIVES

Students who actively participate in the course will be able to answer

- ☐ what are the rules of probability and what else can we prove?
- ☐ how do we calculate probabilities that depend on each other?
- ☐ what does it mean for probabilities to be independent?
- ☐ how can we calculate the probability of duplicate birthdays in a class?
- ☐ what other things can we model with probabilities?
- ☐ how do we describe randomness?
- ☐ how do we describe multi-dimensional randomness?
- ☐ how do we describe the randomness of a sample average?

COURSE COMPONENTS

0. Calculus III prerequisite
0. Elementary statistics recommended

1. Class participation	10%
2. HW	15%
3. Quizzes	25%
4. Midterm	25%
5. Final	25%

MATERIALS

1.iLearn (link)

2. Larsen & Marx, *Introduction to Mathematical Statistics and Applications*, any edition. (I will use the 6th edition: ebook $110, hardcover $157 on Amazon, rent $36.)

3. Homework posted on iLearn.

TUTORING

1. Student Tutoring THH 426

2. LAC: https://lac.sfsu.edu/

HEALTH & ADVISING

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

FINAL EXAM:

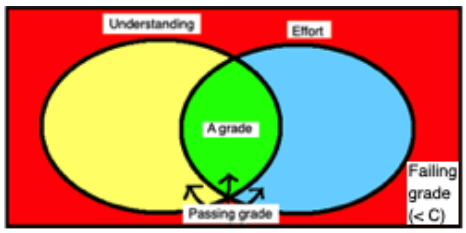
Thursday 5/23 1-3:15 pm

COURSE CALENDAR:

A tentative schedule with dates for homework, quizzes, and the midterm is on iLearn.

What will I need to do to be successful?

Since effort itself is a useful life skill, this course is designed so that you can pass with either understanding or effort and do extremely well only with both:



Understanding is gained by thinking about the material and practicing. It is both conceptual, as in, do you understand the rules of probability, how they fit into statistics, and what the connections are? and mechanical: can you solve the math?

Effort takes many forms: come to all classes, do all the homework, ask questions, go to the LAC or math department for tutoring, come to office hours, study the book, and look over mistakes you have made in the past to learn from them. I promise this effort is not wasted for your success in this class.

What do I expect of you?

First, so that you can put in the effort you need to achieve what you want, I hope that you know your personal balance between how much work you have time for and the level of success you aspire to.

Second, 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. Deadlines are also firm but if you are sick, please let me know ahead of time so we can plan reasonable accommodations ahead.

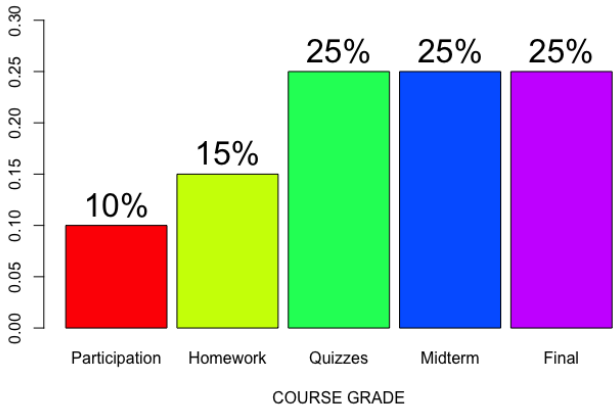
Above all, our ethical habits are important to maintain and develop because we carry them with us beyond school. Freely work together on homework and for study, but you must communicate your solutions in your own words. It is not ethical or thoughtful to copy others' work. You will also learn better if you try to explain in your own words. We have many resources to help you when you get stuck. You will receive a 0 on copied work the first time, and 0 on the entire assignment the second time. You will also be reported to the Office of Student Conduct after the first time. Arguing a 0 when the evidence is obvious will also result in a 20% deduction on the next assignment.

What can you expect of me?

I welcome your questions. I will listen to your comments seriously. I will respond to iLearn and email within 24 hours. If you ask me for help, I will try work with you so you can learn probability and statistics more effectively. I try to use a learning model of "I do, we do, you do": even though math is learned ultimately by doing, I will guide you as much as our class time allows.

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

Grading components are designed to make use of many different learning styles (please zoom in):



Participation (10%) has 2 parts:

1. In-class pair activities (5%)
2. iLearn & communication (5%)

Quizzes (25%) have 3 parts:

1. Graded Q (80 pts)
2. Peer-Grading (10 pts)
3. Peer-Graded Q (10 pts)

Quizzes can be "revisited" for 50% of your #1 points back. Tutoring before next quiz gives you 25% back of your #1 points back.

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

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:

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

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).