Math 114xg: Foundations of Statistics

| Туре | Section | Time | Instructor |
|------------|--------------------|-----------------------|--------------|
| Lecture | 39985R | MWF 11:00-11:50am PST | Zhaoyu Zhang |
| Discussion | 39986R | TTh 8:00-8:50am PST | Xinze Du |
| Discussion | $39987 \mathrm{R}$ | TTh 9:00-9:50am PST | Xinze Du |

Disclaimer: This syllabus does not constitute a contract. The Instructor reserves the right to make changes at his discretion throughout the semester.

Contact Information:

- Instructor: Zhaoyu Zhang Email: zzhang51@usc.edu Office hours (tentative): Monday 12:00 - 1:00pm PST, and Wednesday 4:00 - 6:00pm PST, or by appointment.
- TA: Xinze Du

Email: xinzedu@usc.edu

Office hours: The TAs will be holding consulting hours in the Math Center (KAP 263) starting the second week of classes. The Math Center zoom sessions can be accessed by going to the Math Center website dornsife.usc.edu/mathcenter. The hours will be posted on the Math Center website starting the third week of classes.

Course Description: This course is as an introduction to statistics. Statistics is the art and science of analyzing and making generalizations from data. We shall see that it is grounded in probability which is a branch of mathematics and very much scientifically based, but designing experiments and interpreting results is very much an art. We will be wrestling with both the science and art of statistics in this class. Recommended preparation: MATH 040x or math placement exam. Not available for major credit to Math students.

Learning Objectives: By the end of this class you should be able to do the following.

- Students should identify different types of data and variables (categorical, numerical, single variable, multi-variable, paired).
- Students should demonstrate an understanding of basic ideas of statistical inference, both tests of significance and interval estimation, in a variety of settings.
- Students should be able to compare two population proportions and treatment probabilities and make statistical inferences using simulation and theory.
- Students should be able to explore relationships between several populations.

Course Textbook: Introduction to Statistical Investigations, First Edition, by Tintle, Chance, Cobb, Rossman, Roy, Swanson, and Vanderstoep published by Wiley. It also includes apps, data, worksheets, videos and an online homework system. We will be making use of many of these. This means you cannot just buy a printed copy of the text; you will need to purchases access to WileyPlus. Our class ID number for WileyPlus is A36299. The attached sheet shows you how to register with WileyPlus.

Technology Platforms:

• Blackboard: https://blackboard.usc.edu

This is where you will access zoom links to meetings, recordings of classes, slides from lecture, class handouts, and information about tests. All lectures and discussions will be offered live on Zoom. The Zoom meeting links are on Blackboard under "**Zoom Meetings**" tab. They will also be recorded and made available as soon as possible. Lecture notes will be posted under "Lecture Notes" tab.

• Gradescope: https://www.gradescope.com

This is where you will upload all handwritten quizzes, reflections, and tests. Our class entry code: YVDKDZ.

- WileyPLUS: https://www.wileyplus.com/user-login/ using the new WileyPLUS platform. This is where you will access information pertaining to the textbook including applets, datasets, and, if you purchase access to WileyPLUS, other materials including an electronic copy of the textbook from which the homework will be pulled. The course section ID is A36299.
- Slack: Join the link https://join.slack.com/share/zt-kstqeofn-UC2EmOu9GXclyK6Xs3Clhw. This is where you will interact with the instructor, and other students.

Software, Computers, and Calculators: Statistics has undergone a revolution with the increasing computational power we all have at our fingertips. In this course we will make use of that power; we will use applets that come with the text and run on your computer to conduct statistical investigations. In addition, You must have a scientific calculator for tests. This does not have to be sophisticated, a simple calculator (e.g. TI-30X) that will do basic arithmetic along with square roots is sufficient.

| Homework: | 15% |
|--------------|-----------------|
| Reflections: | 5% |
| Quizzes: | 10% |
| Midterms: | $20\% \times 2$ |
| Final Exam: | 30% |

Grading:

Homework: The homework will be handled through WileyPLUS. These assignments will be available after each lecture, and they will typically be due the following **Tuesday by 11:00 pm, PST**. Late homework assignments will receive half-credit.

Reflections: Students will be required to submit their reflections or thoughts on topics learned to help to understand the main concepts, and mathematical formulas. The purpose of this coursework is to help students better digest course material, and improve their level of understanding. No make-ups under no circumstances, and the <u>two</u> lowest reflection scores will be dropped at the end of the semester. These reflections will be due every Wednesday by 11:00 pm, PST on Gradescope. The minimum requirements for the reflections are:

- Summarize what you have learned last week.
- Write down important concepts, and formulas.
- Have you encountered any difficulties while doing homework, and quizzes? If yes, what are those?
- Write down questions or concepts that you plan to discuss with classmates, the TA or the instructor, if any.

Quizzes: There will be a weekly 15-minute quiz during **Thursday**'s discussion sessions. There will be no quiz in the exam week. No make-ups under no circumstances, and the <u>two</u> lowest quiz scores will be dropped at the end of the semester. At the end of each quiz, you will be given 5 minutes to neatly scan your work (pdf file), and upload and page-label your submission on **Gradescope**. During each quiz, with no exceptions, everyone will be required to log onto Zoom with their camera ON filming their activity during the entire duration of the examination, including the submission part.

Important Dates:

| Friday, January 15, during class | First day of classes |
|--|----------------------|
| Friday, February 5 | Last day to add |
| Friday, February 5 | Drop without "W" |
| Monday, March 1, during class | Midterm exam 1 |
| Monday, April 5, during class | Midterm exam 2 |
| Friday, April 30 | Drop with "W" |
| Wednesday, May 5, 11:00am - 1:00pm, PST. | Final exam |

Exam Policy:

- Exams are open-book, open-note. You may use calculators, but you are also expected to show all of your work for every question and give detailed explanations for your answers. You may not consult with any other human during the exam, either in person, via chat, or in internet forums. This would be considered a serious violation of the Student Conduct Code (https://policy.usc.edu/scampus-part-b/).
- During each examination, with no exceptions, everyone will be required to log onto Zoom with their camera ON filming their activity during the entire duration of the examination, including the submission part.
- If there is a scheduling conflict for an exam, you must **let ME know (NOT the TA) at least 2 weeks before the examination**. A scheduling conflict must involve an activity sponsored and approved by USC (marching band, athlete event, etc.). In particular, the university club or organization in question must send an official request, with the Dean's approval, to all faculty. Personal activities do not qualify. **FAILURE TO ATTEND AN EXAMINATION WILL NOT BE EXCUSED UNDER NO CIRCUMSTANCES**.

Academic Integrity: Be honest, and don't cheat. I take academic dishonesty seriously and will report offenses. All work done during tests must be solely your own work. You must abide by the university policies on academic integrity. Please review the Trojan Integrity Guide, or the General USC Policies.

Students with Disabilities: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to the instructor as early in the semester as possible. DSP is located in STU 301 and is open 8:30a.m.-5:00p.m., Monday through Friday. The phone number for DSP is (213)740-0776.

Calendar:

| Dec 2020 | | J | anuary 2 | 021 | | Feb 2021 ► |
|---------------------|------------------|-----|------------------|-----|-----------------------|------------|
| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 Syllabus | 16 |
| 17 WEEK 1 | 18 MLK | 19 | 20 P.1 | 21 | 22 P.2 | 23 |
| 24 WEEK 2 | 25 1.1 | 26 | 27 1.2 | 28 | 29 1.3 | 30 |
| 31 | | | | - | | |

| Jan 2021 February 2021 Mar 2021 | | | | | | |
|---------------------------------|-------------|-----|-----|-----|--------|-----|
| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| 31 | 1 | 2 | 3 | 4 | 5 | 6 |
| WEEK 3 | 1.4 | | 1.5 | | 2.1 | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| WEEK 4 | 2.2 | | 2.3 | | 3.1 | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| WEEK 5 | President's | | 3.2 | | 3.3 | |
| | Day | | | | | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| WEEK 6 | 3.4 | | 3.5 | | Review | |
| 28 | | - 1 | | - 1 | | |
| | | | | | | |

| Feb 2021 | | N | larch 20 |)21 | | Apr 2021 🕨 |
|----------|-----------|--------------|----------|-----|--------------|------------|
| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| 28 | 1 | 2 | 3 | 4 | 5 | 6 |
| WEEK 7 | Midterm 1 | | 4.1 | | 4.2 | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| WEEK 8 | 5.1 | | 5.2 | | Wellness Day | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| WEEK 9 | 5.3 | | 6.1 | | 6.2 | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| WEEK 10 | 6.3 | Wellness Day | 7.1 | | 7.2 | |
| 28 | 29 | 30 | 31 | | | |
| WEEK 11 | 7.3 | | 8.1 | | | |

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| Mar 2021 | | | April 202 | 1 | | May 2021 🕨 |
|------------------------------|-------------------|-----|--------------------------|---------------------------|--|------------|
| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
| | | | | 1 | 2 Review | 3 |
| 4 WEEK 12 | 5 Midterm 2 | 6 | 7 Wellness Day | 8 | 9 8.2 | 10 |
| 11 WEEK 13 | 12 9.1 | 13 | 14 9.2 | 15 | 16 10.1 | 17 |
| 18 WEEK 14 | 19 10.2 | 20 | 21 10.3 | 22 Wellness Day | 23 10.4 | 24 |
| 25 WEEK 15 | 26 10.5 | 27 | 28 Review | 29 | 30 Wellness Day Classes End | |

| Apr 2021 | ▲ Apr 2021 May 2021 Jun 20. | | | | | | |
|------------------------------|-----------------------------|-----|---------------------------|-----|-----|-----|--|
| Sun | Mon | Tue | Wed | Thu | Fri | Sat | |
| | | | | | | 1 | |
| 2 | 3 | 4 | 5 Final Exam | 6 | 7 | 8 | |

WileyPLUS

Find and register for your course section!

Your Course Section ID is



Step 1:

Sign up for a WileyPLUS account

- Visit www.wileyplus.com/go/login.
- Click "Create Account" to create an account.
- Fill in your account details and set your password.
- If you already have a WileyPLUS account, just log in and click "Add more courses."

| WileyPLUS | Customer Support NS NextGen Student Y | LOGOUT |
|---------------------------------------|---------------------------------------|-----------|
| Do you have your course sectio | on ID? | 0 |
| R99927 | | <u> </u> |
| | I don't have it 💿 Find r | ny course |

Step 2:

Enter your course section ID

- Your six-symbol course section ID is provided by your instructor.
- Don't have your course section ID? Use the course finder and enter your school.

Step 3:

Access your course section

- Review your course section overview.
- Click the course section link to access your new course.



Need Help?

Live chat support: www.wileyplus.com/go/wpngsupport

WILEY

| | | | Welcome to WileyPLUS Internet | Set your password |
|---------|---|---|--|--|
| issword | | your WileyPLU | to me | Enter a new password for your WileyPLUS account. |
| | First Name | | | E-mail address* |
| | Last Name | | WileyPLUS | violet.wileyplus@gmail.com |
| | Crual Address 3.6ed 1 | \bigcirc | Hi there Violet, | |
| | Confern Small | \cup | I'm pleased to confirm that yo almost ready to enroll in Wiles | New password* |
| | Coltrin Linar | Sign up almost ex We just sent you a confe | Your username to log in to Wi | |
| | School Name | Follow the link to comple | Click here to set your passwo | |
| | | | Friendly advicekeep this em | |
| | Notify me about a Lagree to the Terr | discount offers and relevant was of line. | If you have any questions my way! I definitely recommend to tidbits!). You can also contact assistance. | Confirm password* |
| Submit | | Submit | Happy learning! | |
| | E | Go Back | The WileyPLUS Team | |
| | | | WILEY | Set Password |