Introduction to Mathematical Statistics II

STAT 4202

Course Information

- Instructor:
  Prof. Yunzhang Zhu
  425 Cockins Hall
  zhu.219@osu.edu

- Teaching assistants:
  Shuyi Wang, Email: wang.7649@buckeyemail.osu.edu, Tutoring hours: M 12:40-1:40, M 5:20-6:20, W 1:50-2:50, Th 1:50-2:50, 134 Cockins Hall
  Renxiong Liu, Email: liu.6732@buckeyemail.osu.edu, Tutoring hours: M 9:10 AM- 11:20 AM and W 1:50 PM-4:00 PM, 134 Cockins Hall
  Chenggong Han, Email: han.1071@buckeyemail.osu.edu, Tutoring hours: M 1:50-2:50, 3:00-4:00, Th 11:30-12:30, 12:40-1:40, 134 Cockins Hall

- Prerequisites: C- or better in 4201, Math 4530, or 5530H, or permission of instructor. Not open to students with credit for 3202, 6201, 6302, or 6802.

- Lecture Time: 3:00 P.M. - 3:55 P.M., M,W,F, Knowlton Hall - Room: 250

- Office Hours: 425 Cockins Hall, Monday and Wednesday 4:00 P.M. - 5:00 P.M. and by appointment (via email).

- Recitations: It is required to sign up for a lab/recitation session. The TAs will help you review important concepts and do practice problems in these sessions. Quizzes will also be regularly given during the recitations.

- Required textbook: *John E. Freund's Mathematical Statistics with Applications (8th edition) by Irwin Miller and Marylees Miller* (reserved at OSU library, available at Amazon)

- Tentative Topics:

  Chapter 10: Point Estimation (3 weeks)
  Chapter 11: Interval Estimation (2 weeks)
  Chapter 12: Hypothesis Testing (2 weeks)
  Chapter 13: Hypothesis Testing Involving Means, Variances, and Proportions (3 weeks)
  Chapter 14: Regression and Correlation (2 weeks)
  Chapter 15: ANOVA (1 week)
  Chapter 16 Nonparametric Tests (1 week)
  Chapter 9 Decision Theory (1 week)

- Course website: Most course material will be available on Canvas https://carmen.osu.edu/. Please check it regularly for class announcements and class material.

Course Description, Learning Goals and Objectives

This course covers the fundamental topics in statistics, such as point and interval estimation, statistical tests, and regression, with rigorous mathematical treatments and various applications. **This course satisfies the General Education (GE) requirement in Data Analysis. Goals:** Students develop skills in drawing conclusions and critically evaluating results based on data. **Expected Learning Outcomes:** Students understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas.

Homework & Quiz

Homework assignments will be posted on the course website. There will be $8 - 10$ homework assignments, each containing about 10 problems. Each homework will have some problems graded for accuracy and some graded for completion. You are encouraged to discuss homework problems with other students. There will be $5 - 7$ quizzes, each containing 1 or 2 problems. The first quiz (quiz 0) will not be graded. All quizzes will be close-book/close-notes. You may bring a calculator, but cheat sheet is not allowed for quizzes. The quiz problem(s) will be similar to homework problems. For most weeks, there will be a quiz and/or a homework assignment due in recitation. Your lowest homework and quiz score will be dropped at the end of the semester, so late homework will **NOT** be accepted and **NO** makeup quizzes will be given.

Exams

All exams will be closed-book. Statistical tables will be provided as needed. Calculators may be used on the exams, but the calculators on cell phones, PDAs, or any other communication device are **NOT** allowed. You may use one 8.5 x 11 inch sheet of paper (both sides, handwritten), with whatever facts, formulas, or explanations you find helpful for both Midterms, and you may bring two such sheets for the final exam.

There will be **NO** makeup exams. The only excuses for missing an exam are a serious illness requiring hospitalization or a major family crisis. Proof must be provided in the form of an official document. A note from a family member alone is not sufficient.

You have until one week after receiving your grades on the exams to dispute the grade; the same applies to any homework/quiz grade. After that no grade will be changed for any reason. Note that when asking for a question to be re-graded, the entire assignment/exam may be re-graded. So please be aware that you may run the risk of losing more points than you gain back.

Important note: To receive full credit on homework, quizzes and exams, you need to show your justifications for all work. Answers without work will receive only partial credit.

The final exam will be cumulative, but will emphasize more on the recent material. The two midterm exams will be in the regular lecture room Knowlton Hall - Room: 250; and the

location of the final exam will be posted later according to the university arrangement. The exams are **TENTATIVELY** scheduled for:

Midterm I	Friday, Sept. 27 (lecture time)
Midterm II	late October/early November
Final Exam	Friday, Dec. 6, 12:00pm-1:45pm

The dates for the exams are tentative and I reserve the right to change the dates; at least one week of notice will be provided in case of a change.

Evaluation

Your final grade for this course will be determined by your performance on homework, quizzes, the midterm, and the final exam. The weights for each are as follows:

Homework	20%
Quiz	20%
Midterm I	20%
Midterm II	20%
Final Exam	20%

Other comments

- **E-mail correspondence:** In order to protect your privacy, all course e-mail correspondence must be made through a valid OSU name.nn account. Please make sure to include "STAT 4202" in the subject line. In addition, I may not respond to questions which can be answered by looking at the syllabus or Carmen, and/or were announced in class. Please allow up to 48 hours for responses to other inquiries made via email.

- **Extra Help:** The Mathematics and Statistics Learning Center provides group tutoring in Cockins Hall 134. More information can be found at https://mslc.osu.edu/mslc-free-tutoring.

- **Attendance:** While I will not be taking attendance, you are expected to attend every class session. If you miss class then it is your responsibility to get any and all material covered from a classmate. Arriving late or leaving early is distracting to you, your classmates, and me and will not be tolerated.

- **Calculators:** Please note that at no time will you be permitted to share a calculator with another student, use a calculator with a CAS, or use any internet enabled device (e.g., a cell phone) as a calculator.

- **Electronic devices:** Use of communication devices and technology for activities other than class work disrupt the learning process for you and others in the class and will not be tolerated. Cell phones and other electronic devices should be turned off or silenced during class.

- **Recording of Class:** Audio, video, and photographic recording of class content (e.g., lectures) is strictly prohibited without written authorization from the instructor. The transmission or dissemination of all course content onto public, commercial, or social media sites is strictly prohibited.

Academic Integrity

Although students are encouraged to work together on homework assignments, each student must submit their own written work in his or her own words. Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with University Rule (http://oaa.osu.edu/procedures).

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentlife.osu.edu/csc/).

Disability Statement

Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307, slds@osu.edu; slds.osu.edu.

Disclaimer

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advanced notice.