

SYLLABUS FOR STS 532 - SPRING 2026 MATHEMATICAL STATISTICS II

Description: This is a graduate-level course in mathematical statistics. This is the second semester in which we will cover Hypothesis testing, Interval estimation, ANOVA, regression models.

Instructor: Shalin Parekh

Contact: shalin.parekh@maine.edu

Class Time: MWF Room 421 Neville Hall 9:00 - 9:50 am

Office Hours: MWF Room 334 Neville Hall 9:55 - 10:45 am

Textbook: Casella & Berger. *Statistical inference*. 2nd Edition. (This may be supplemented by some additional notes)

1. TENTATIVE SCHEDULE

Weeks 1 - 3: Chapter 8 - Hypothesis testing: likelihood ratio tests, Bayesian tests, most powerful tests, p -values.

Weeks 4 - 6: Chapter 9 - Interval estimation. Inverting test statistics, pivots, evaluation

Spring break: March 16-20

Weeks 7 - 9: Chapter 10 - Asymptotic evaluations: consistency of estimators and robustness of previous inference methods

Midterm exam: Monday March 30

Weeks 10 - 12: Chapter 11 - ANOVA: an intensive overview of the one-way analysis of variance technique.

Weeks 13 - 14: Chapter 12 - Regression models and least squares minimization techniques.

Final Exam: TBD

2. GRADING

Homework will be assigned weekly from the book. The class grading will be as follows.

Homework: 40%

Attendance and Participation: 10%

Midterm 1: 25%

Final Exam: 25%

3. ACADEMIC HONESTY

The course policy on academic honesty aligns with the University of Maine's code of academic integrity. All students are expected to abide by the code. If a student is suspected to have breached this code, the student will be referred to the Office of Community Standards, Rights, and Responsibilities. For more information on academic integrity, the honor code, and the Office of Community Standards, Rights, and Responsibilities refer to

<https://www.maine.edu/board-of-trustees/policy-manual/section-314/#:~:text=Academic%20integrity%20is%20based%20upon,and%20abilities%20of%20each%20student.>

4. EXTRA HELP

If you are struggling with the course or have any questions, you should make use of my office hours (see above). I am readily available and happy to answer questions. Your classmates are another important resource. Discussing homework and studying together is encouraged, though any written submissions must be your own work.



Statistical Inference

Second Edition

George Casella
Roger L. Berger

DUXBURY ADVANCED SERIES