

**Syllabus**

**Course Web Page:** <http://rohan.sdsu.edu/~rlevine/Stat670>

**Meeting Time:** Lectures: MW 5:30 - 6:45 p.m. in GMCS 325

**Instructor:** Professor Richard Levine  
GMCS 565  
email: [rlevine@sciences.sdsu.edu](mailto:rlevine@sciences.sdsu.edu)  
Office Hours: M 4:00 - 5:00 p.m.; TW 3:00 - 4:00 p.m.

**Reference:** The textbook for the course is

Casella, G. and Berger, R. L. (2002). *Statistical Inference*, 2nd Edition. Duxbury, California.

**Objectives:** Mathematical statistics is the backbone of methods applied and developed in statistical practice and research. This course will provide you with the mathematical machinery and underlying statistical theory to understand and evaluate statistical routines, expand/manipulate existing or establish new procedures, communicate statistical ideas, and read the scientific, particularly statistically-related, literature to critically judge the relevance of research results. The goal is to bring together your understanding of statistical methods into a coherent conceptual and theoretical framework within which you may gain a greater comprehension and appreciation of statistical inference and thinking. Additionally, the material will teach you how to approach statistical problems from a mathematical perspective as a complement to the computational and data analytic training you receive in more applied courses and work.

**Homework:** Homework assignments will be regularly available on the course web page. The homework will contain a series of practice problems which *will not* be handed in nor graded. All material covered on the assignments will be questioned on the exams. The homework serves as a tool to review and practice the material covered in class.

**Exams:** There will be three in-class exams, the exact dates to be determined. All exams are closed book. A hand calculator is necessary for all exams.

Each exam will be worth 100 points. You will be allowed to drop your lowest exam grade. **No makeup exams are given- no exceptions.**

The final exam will be given Saturday, December 20 from 8:00 a.m. to 10:00 a.m. in GMCS 325. The final will be cumulative.

**Grading:** The grade for the class is based on a score composed of the following.

Three Exams (Best 2 out of 3)	60%
Final Exam	40%

**Topics to be covered:** basic outline; topics may be added and/or dropped as the semester proceeds.

1. Probability theory
  - a. Basics
  - b. Inequalities
2. Distributions
  - a. Moment generating and characteristic functions
  - b. Identifiability
  - c. Multivariate and hierarchical models
  - d. Transformations
3. Sampling theory
  - a. Order statistics
  - b. Asymptotics
4. Descriptive statistics
  - a. The principles: sufficiency, likelihood, invariance
  - b. Empirical cdf and smoothing

**Prerequisites:** A calculus-based probability course (STAT 550 or 551A) and linear algebra (MATH 254).

**Tardiness and Early exits:** The class time is from 5:30 - 6:45 p.m. As common courtesy to your fellow students, we would appreciate if you show up to class on time and leave when dismissed at 6:45. If you must leave early, please inform me and sit on the aisle near an exit so as not to disturb students listening to and trying to learn from the lectures.

**Code of Academic Conduct on Examinations and Assignments:** “At San Diego State University, students are invited to be active members of the educational community. As with any community, its members serve a vital role in determining acceptable standards of conduct, which includes academic conduct that reflects the highest level of honesty and integrity.” The “Statement of Student Rights and Responsibilities clarifies for students their role as members of the campus community, setting forth what is expected of them in terms of behavior and contributions to the success of our university.” “Inappropriate conduct by Students . . . is subject to discipline on all San Diego State University Campuses. The Center for Student Rights and Responsibilities coordinates the discipline process and establishes standards and procedures in accordance with regulations contained in Sections 41301-41304 of Title 5 of The California Code of Regulations, and procedures contained in Executive Order 628, Student Disciplinary Procedures for The California State University.” See <http://www.sa.sdsu.edu/judicial> for more information.

**Other information:** See course web page: <http://rohan.sdsu.edu/~rlevine/Stat670>