

Mathematical Statistics I — Stat 6710, Section 001, Fall 2004

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Office hours: MWF 9am – 10am and by appointment.

Classes & Rooms: MWF 1:30pm – 2:20pm, Mo 8/30 – Fr 12/10, 2004: Engr 206.

Text: *Statistical Inference* (Second Edition) by George Casella and Roger L. Berger.

Course Objectives:

This course and its sequel, Stat 6720, will work through Casella and Berger fairly linearly. However, I reserve the right to skip around, omit some parts, or bring in some outside material. Casella and Berger will be the only textbook for this sequence although you should also check some of the books held on reserve for this course at the library.

Topics:

- Probability Theory
- Random Variables and Transformations
- Expectations and Other Moments
- Random Vectors
- Particular Distributions
- To be continued in Stat 6720...

Course Requirements:

- 0) Prerequisite:** Although I will not insist on any specific course as a prerequisite, knowledge similar to “Theory of Probability and Introduction to Mathematical Statistics” (preferably at a strong enough level to pass the masters qualifying exam in probability and statistics) is highly desirable. Also valuable, but not required, is a good background in linear algebra and (advanced) calculus. If you are concerned about your preparation, please contact me.
- 1) Class Attendance:** You are responsible for all material assigned as required reading and/or presented in the lectures.
- 2) Lecture Notes:** Lecture notes will be prepared by the instructor. A “working” version will be handed out at the beginning of each Section (or Chapter). The “final” version will be provided after each Section (or Chapter) if time permits.
- 3) Lecture Preparation & In-Class Presentation:** Each student has to prepare and teach one (or two – depending on the number of students in this class) 50 min lectures during

the course of the semester. This includes the preparation of a working version of the lecture notes (with an additional example not found in the old lecture notes nor Casella and Berger), teaching the lecture, and providing the final version of the lecture notes. A “final” version of a previous Stat 6710 lecture that contains the material to be discussed in class will be provided about 7 to 10 days before a lecture has to be taught by a student. This part is worth a total of 20% (200 points) of your course grade.

- 4) **Homework:** Assignments will be handed out in class every 10 to 14 days. Homework will be collected in class about two weeks thereafter (the exact due date will be stated on each homework assignment). Homework mailed in, sent by FAX, or sent by e-mail by the due date will be accepted as well. In general, late homework will not be accepted. Homework assignments are worth a total of 20% (200 points) of your course grade. To obtain full credit, you must show your work leading to the correct answer. However, even if your answer is wrong, you will probably receive at least partial credit if you show your work, but not otherwise. If you like, you may work in groups on the homework assignments. In fact, you are encouraged to do so. However, each person must turn in an individual homework solution sheet. Photocopies are not permitted.
- 5) **Software:** This course will not focus on any particular mathematical or statistical software package. You can use any statistical package you want for the homework assignments.
- 6) **Midterm:** There will be a 3-day take-home midterm exam to be handed out between Friday 10/1/2004 and Friday 10/8/2004 worth a total of 25% (250 points) of your course grade. You can decide yourself when to pick the midterm exam but you have to turn it in within 3 days (72 hours) after you have picked the exam.
- 7) **Final:** There will be a 4-day take-home final exam worth a total of 35% (350 points) of your course grade. When the flexible schedule for the midterm works out satisfactorily for everyone, we will use a similar schedule for the final exam. Midterm and final will consist of problems similar (or simpler) to those in the homework assignments. Please note that you are **NOT** allowed to discuss or share any questions or solutions with any of the other students while anyone is still working on these exams nor get any additional help from anyone else other than the instructor.
- 8) **Disabilities:** If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center, preferably during the first week of the course. Any requests for special considerations relating to attendance, pedagogy, taking of examinations, etc. must be discussed with and approved by the instructor. In cooperation with the Disability Resource Center, course materials can be provided in alternative formats — large print, audio, diskette or Braille.

Grading System:

Final	35%	350 pts
Midterm	25%	250 pts
Homework	20%	200 pts
Lecture(s)	20%	200 pts
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Total	100%	1000 pts

Course grades will be generally comparable (in terms of distribution) with grades assigned in other graduate statistics courses. The above schedule and procedures in this course are subject to change in the event of extenuating circumstances.