

Mathematical Statistics II: Statistical Inference

- Instructor:** Steve Kachman
Office: 354B Hardin Hall
Phone: 472-7302
Office Hours: Immediately after class
Textbook: *Statistical Inference*, 2nd edition; Casella and Berger, 2002
References: *Introduction to Probability and Mathematical Statistics*, 2nd edition; Bain and Engelhardt, 1992.
Introduction to Mathematical Statistics, 5th edition; Hogg and Craig, 1995.
Introduction to Probability Theory and Statistical Inference, 3rd edition; Larson, 1982.
- Prerequisites:** STAT 882
- Grading:**
- | | |
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| Homework | 20% |
| Exam I | 25% |
| Exam II | 25% |
| Final Exam | 30% |
- A final average of 90% will guarantee an A-, 80% a B-, 70% a C- and 60% a D-.
- Available at <http://my.unl.edu/>
- Homework:** Approximately 12 homework assignments will be made over the course of the semester. You will always have at least a week to work on each of the assignments. Late homework should be avoided in all but the most dire emergencies.
- Exams:** Exams are closed book and notes. You are expected to take exams at the scheduled times. If this is impossible due to extreme circumstances (illness, death in the family, previously scheduled activities vital to academic program), please notify me. No make-up exams will be given if I am not notified prior to the examination. You will be required to obtain a note from your physician or adviser explaining the nature of the conflict.
- Final Exam:** The final is scheduled for **Friday, May 9 from 10:00 - Noon**. This exam is also a closed book and notes.
- Disabilities:** Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.
- Web page:** <http://statistics.unl.edu/faculty/steve/883/2008/>

TENTATIVE COURSE OUTLINE

Week	Day	Topic
Jan. 15	Tues Thurs	Multinomial distribution; order statistics Order statistics
Jan. 22	Tues Thurs	Simulation studies Sufficiency
Jan. 29	Tues Thurs	Completeness Point estimation; method-of-moments
Feb. 5	Tues Thurs	Maximum likelihood estimators Maximum likelihood estimators
Feb. 12	Tues Thurs	Bayes estimators Bayes estimators; evaluating estimators
Feb. 19	Tues Thurs	EXAM 1 Mean squared error; UMVUE
Feb. 26	Tues Thurs	CRLB Sufficiency, completeness and best estimators
Mar. 4	Tues Thurs	Intro to hypothesis tests; errors; power; size and level of tests Unbiased tests; Neyman-Pearson lemma
Mar. 11	Tues Thurs	Neyman-Pearson lemma Neyman-Pearson lemma
Mar. 18	Tues Thurs	SPRING BREAK SPRING BREAK
Mar. 25	Tues Thurs	Monotone likelihood ratio; Karlin-Rubin theorem Likelihood ratio tests
Apr. 1	Tues Thurs	Likelihood ratio tests EXAM 2
Apr. 8	Tues Thurs	p-values Intro to interval estimation
Apr. 15	Tues Thurs	Inverting test statistics; inverting LRTs Pivotal quantities; Bayesian intervals
Apr. 22	Tues Thurs	Evaluating interval estimates Asymptotics—consistency, efficiency
Apr. 29	Tues Thurs	Asymptotics Catch-up/review