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Course Description from Bulletin: Theory of estimation; principles of data reduction; interval and point estimation, sufficient statistics; hypothesis testing, correlation and linear regression; introduction

Enrollment: Elective for AM and other majors

Textbook(s): G. Cassella and R. L. Berger, *Statistical Inference*, 2nd ed., 0534243126.

Other required material: R software, other software

Prerequisites: MATH 475 Probability or MAT

Rao-Blackwell theorem, loss function optimality	
5. Hypothesis testing	8
a. Methods of finding tests: likelihood ratio test, Bayesian test	
b. Methods of evaluating tests: error probabilities, power function, p-values, Neyman-Pearson Lemma	
6. Interval estimation	6
a. Pivoting method	
b. Size and coverage probability	
7. Asymptotic evaluation	6
a. Point estimation: consistency, efficiency, comparisons	
b. Asymptotic distribution of LRTs / confidence intervals	
8. Introduction to linear models (time permitting)	3
a. Simple linear regression: least squares	
b. One-way ANOVA.	

Assessment:

Homework 10-30%

Project 0-20%

Quizzes/Tests 20-50%

Final Exam 30-50%

Syllabus prepared by: Lulu Kang, and Sonja Petrovi (modification of original 563 syllabus prepared by Andre Adler, Fred Hickernell, and Lulu Kang)

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