

Mathematics 602—Mathematical Statistics
Fall 2007

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Course Description: This course will review thoroughly the key distributions of statistics and the multivariate calculus and related probability needed to work effectively with these distributions. In addition the course will develop from first principles the key sampling distributions of statistics. We will then go over classical principles of statistical inference, methods of finding estimators and test statistics, and methods of finding optimal tests and estimators. Included will be an introduction to Bayesian methods.

This course seeks not only to lay out basic principles of statistical inference and to add to the student's toolkit, but also to develop skills needed for work in statistical research. Therefore the assigned problems will be particularly important.

Prerequisites: Math 221 and Math 301/601 or equivalent.

Textbook: Casella and Berger, Statistical Inference, second edition.

Final Exam: Friday December 14 8AM – noon

Tests: Wed Oct 3, Wed Nov 14

Grading formula: Final exam 35%, Tests 20% each, Homework 25%. Of course I may increase your grade beyond that indicated by your average if convinced your average does not adequately reflect your knowledge of the subject.

Homework problems:

Chapter 2: 1, 6, 7, 12, 15, 17, 23, 24, 33, 39
Chapter 3: 1, 2, 3, 4, 6, 8, 9, 10, 16, 20, 24, 25, 26, 28, 39
Chapter 4: 4, 5, 6, 12, 15, 19, 20, 28, 31, 32, 42, 43, 45, 52, 56
Chapter 5: 1, 3, 10, 12, 16, 17, 18, 21, 29,
Chapter 6: 1, 2, 3, 9, 17
Chapter 7: 1, 2, 9, 10, 23, 24, 41, 46, 48a
Chapter 8: 1, 2, 6, 12, 13, 14, 15, 17, 20, 49

Discussion problems: (These will be discussed in class; students are encouraged to try them in advance.) Ch 2: 14, 18, 19 Ch 4: 13, 61 Ch 5: 2, 8, 35, 36 Ch 6: 20
Ch 7: 18, 22, 48b, 52 Ch 8: 5, 25, 38, 41, 42