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1. Course Description

This is a first-year Ph.D.-level Economics course in introductory probability and mathematical statistics. The topics covered in this course are intended to prepare the student for subsequent courses in econometrics, including Econ 671 (estimation, inference, etc. in linear models), 672 (panel data, GMM, bootstrap), 673 (topics in time series) and 674 (microeconometrics, including MLE, the EM algorithm and limited dependent variable models).

Our goal in this course is to get through most of the material covered in the first 5 chapters of the text, leaving some of the material in these chapters (particularly chapter 4) for other courses. In so doing, we will review the basics of joint, conditional and multivariate probability, moments and moment generating functions, special distributions, notions of convergence of random variables and basic asymptotic (large-sample) theory.

2. Grading and Textbooks

Your course grade will be divided (65-35) among two examination scores and a problem set score. The problem sets, given (approximately) weekly or bi-weekly, will account for 35 percent of your final grade, and the teaching assistant(s) for the course will be responsible for their grading. The examination component of the course grade will be calculated as an equally-weighted average of a midterm and final examination score, and this average will represent the remaining 65 percent of your grade. The midterm exam will be held in class on Thursday, November 20, and the final exam will be held in-class during the last scheduled lecture day of the semester (Thursday, December 11).

The textbook for the course is *Introduction to Mathematical Statistics* by Hogg, McKean and Craig. Most of the questions on the problem sets will be taken from this text. Though not required, another useful text at approximately the same level is Casella and Berger’s *Statistical Inference*. 