

THE PENNSYLVANIA STATE UNIVERSITY
Department of Economics

Economics 501
Syllabus

Gallant
Fall 2014

Purpose: The course covers a selection of topics from probability theory and mathematical statistics that graduate students in economics must know. The modern literature presumes a working knowledge of these topics. For example, to read Lars Peter Hansen (econometrics), Mark Machina (microeconomics), Robert Lucas (macroeconomics), and Darrell Duffie (finance) requires a good understanding of conditional expectation, which is one of the topics covered. In addition, the course provides students with a basis for deciding early in their studies if theoretical econometrics is a field in which they would like to write their dissertation. One year of calculus is a prerequisite. An additional year of advanced calculus, or any other course providing experience with mathematical proofs, would be helpful.

Text: Gallant, A. Ronald, (1997), *An Introduction to Econometric Theory*, Princeton, NJ: Princeton University Press.

Meets: Tuesday and Thursday, 9:45 a.m. to 11:00 a.m., in Walker 112

Topic	Reading Assignment
1. Probability	Chapter 1 8/26–9/11, 6 lectures
2. Random Variables and Expectation	Chapter 2 9/16–10/2, 6 lectures
3. Distributions, Transformations, and Moments	Sections 3.1–3.4 10/7–10/16, 4 lectures
Midterm	Chapters 1, 2, 3.1–3.4 10/21
4. Distributions, Transformations, and Moments	Sections 3.5–3.8 10/23–11/4, 4 lectures
4. Convergence Concepts	Chapter 4 11/6–11/18, 4 lectures
5. Statistical Inference	Chapter 5 11/20–12/11, 5 lectures

There is no class 11/25 & 11/27 (Thanksgiving). Class on 10/14 may have to be rescheduled. Exams will be in class and closed book except for a one page “crib sheet”. Office hours are Wednesdays from about 1:30 p.m. to 3:30 p.m.; an appointment is suggested. Homework and other class information is posted on the net at URL <http://www.aronaldg.org>. Homework counts 25% toward the final grade, the midterm 25%, and the final 50%.