Course Information

**General:** Economics 7818 is a course in mathematical statistics for economics Ph.D. students. It is followed by Economics 7828, a course in regression analysis. Together, Econ 7818 and 7828 are required courses for taking the preliminary exam in quantitative methods.

**Prerequisites:** An undergraduate course in statistics; calculus, to the level of multiple integration with transcendental functions (e.g. log, $e^x$, etc.); the ability to manipulate and simplify algebraic expressions; and to think abstractly.

**Requirements:** There will be two lectures weekly, meeting Tuesday and Thursday from 9:30 to 10:45 p.m. in Economics Rm. 119. The first midterm exam will be on Thursday, September 22, and the second midterm exam on Thursday, October 27; the final exam is scheduled for Wednesday, December 14, 4:30-7:00 a.m. There will be required written work (usually, practice problems from the text) throughout the semester.

**Grading:** Grades will be determined approximately as follows:
- Midterms: 40%
- Final exam: 30%
- Problem Sets: 20%
- Residual:* 10%

*This includes class participation, contact in office hours, subjective scoring of written work, etc.

**Texts:**


(Optional) I will take some problems and examples from *A Course in Econometrics*, Arthur S. Goldberger, Harvard University Press, 1991. This material will be posted on the course website.

(Optional) For a more advanced monograph, for those considering taking 8828 and 8838, the seminars in econometrics, see *Introduction to the Mathematical and Statistical Foundations of Econometrics*, by Herman J. Bierens, Cambridge University Press, 2004.

**Course Website:** There will be a course website on CU Learn. On it I will post notes, problem sets, answers, and computer programs.
Tentative Course Outline: We will cover, in order, the first 9 chapters of the Amemiya text. After a brief introduction of what empirical economists do, we will discuss univariate and bivariate distributions, especially the normal distribution; expectation and sampling distributions; methods of estimation; and introduce the multiple regression model.

Practice Problems: All end-of-chapter problems are suggested; only some are required (to be indicated). Answers to selected problems will be posted on the course website approximately one week after the presentation of the relevant material in class, on a date to be previously announced. Written answers to problems are to be submitted before the answers are posted. These will be selectively graded, and returned. I will take some midterm and final exam questions from these problems. For the purposes of grading, I do not expect you to do all the problems at the end of each chapter.