Textbooks:

Main text: *Probability Theory and Statistical Inference: Empirical Modeling with Observational Data* 2nd Edition by Aris Spanos. For other useful references, please see the course website: [http://www2.hawaii.edu/~fuleky/econ628/econ628.html](http://www2.hawaii.edu/~fuleky/econ628/econ628.html).

Overview/SLO:

This course aims to provide first year economics Ph.D. students with an introduction to probability theory and statistical inference.

Prerequisites:

There are no formal prerequisites, but students are expected to have completed prior coursework in statistics and calculus at the undergraduate level.

Course Structure:

There will be two lectures per week. Exams and homework assignments will focus primarily on material presented in lecture. Homework problems and other important information will be posted on Google Classroom: [https://classroom.google.com/c/MjMxOTAwODgwMTI0?cjc=mavhik](https://classroom.google.com/c/MjMxOTAwODgwMTI0?cjc=mavhik).

Rough List of Covered Topics:

- Probability concepts
- Random variables
- Distributions
- Dependence
- Asymptotics
- Stochastic Processes
- Estimators
- Properties of Estimators
- Inference
- Regression
- Misspecification

It is your responsibility to check the website for announcements, assignments, and any possible changes related to the course plan. Grades will be determined by one midterm (40%) and one final exam (40%), as well as approximately weekly problem sets (20%).

See the table of contents in the book for a more detailed outline of topics. We will follow the chapters in the book sequentially, with approximately one chapter per week.

In addition there will be exercises to help you learn R ([https://www.r-project.org](https://www.r-project.org)).