This course introduces students to econometrics, a subfield of economics concerned with measuring economic quantities. The course studies methods for prediction, hypothesis testing, and causal inference and demonstrates how these methods are applied in economics. The course focuses particularly on identification, estimation, and inference within the framework of linear regression analysis. Estimation methods, such as ordinary least squares, are introduced and properties of estimators are analyzed.

Prerequisites: STAT 2120, STAT 3120, APMA 3110, or APMA 3120, or equivalent.


Grading:
– Problem sets (10%).
– Quizzes (20%): Dates to be announced.
– Midterm (30%): Wednesday, March 16, 2016, 3:30-4:45pm, Monroe Hall 130.
– Final (40%): Thursday, May 5, 2016, 2-4pm, Monroe Hall 130.

The teaching assistants will lead the discussion sections; these discuss econometric concepts and problem sets and introduce students to STATA. Part of the problem sets
consists of computational exercises through which students will gain practical experience and familiarity with statistical software such as STATA. You may discuss the problem sets with your classmates but you must submit your original individual answers. The teaching assistants will grade your submitted problem sets, quizzes, and exams and will return these to you during the discussion sections. Please write clearly. Make-up exams and quizzes cannot be rescheduled (except in severe emergencies which must be thoroughly convincing and properly documented). Solutions to problem sets will not be accepted after their due dates. The lowest grade you receive on one of the problem sets (which could be zero if a student does not submit a solution on time) will be dropped when evaluating your overall grade on problem sets. You may use calculators during exams. You must demonstrate your reasoning and show all calculations to receive full grade. Please check UVaCollab and your UVa email for announcements.

Course Outline:

1– Introduction to econometrics and economic data (chapter 1)

2– Review of probability (Appendix B)

3– Review of statistics (Appendix C)

4– Simple regression analysis (chapter 2)

5– Multiple regression analysis: estimation (chapter 3)

6– Multiple regression analysis: inference (chapter 4)

7– Multiple regression analysis: OLS asymptotics (chapter 5)

8– Multiple regression analysis: further issues (chapter 6)

9– Multiple regression analysis: binary variables (chapter 7)

10– Heteroskedasticity (chapter 8)

11– Specification and data issues (chapter 9)

If time permits:

12– Instrumental variables estimation and two stage least squares (chapter 15)

13– Simultaneous equations models (chapter 16)

14– Regression analysis with time series data (chapters 10-11)

15– Serial correlation and heteroskedasticity in time series regression (chapter 12)