The purpose of this course is to better acquaint students with the methodological issues of research design and data analysis widely used in empirical health services research. To deal with these methods, the course will use a combination of readings, lectures, problem sets (using STATA), and discussion of applications. The course assumes that students have had a prior course in statistics, including the use of linear regression methods.

The final grade for the course will depend on several problem sets (60%), class participation (10%), and a final exam (30%). Any dates noted in the syllabus are tentative.

The primary reading material is excerpted from several econometrics and research design texts:

- Baum CF. An Introduction to Modern Econometrics Using Stata. College Station: Stata Press, 2006.

Required readings, including applications listed in the syllabus and excerpts from the above texts, can be found on Chalk. The following are additional sources that students may find useful:

- STATA manuals

All required course readings will be on Chalk. Problem sets should be completed using STATA version 9 (Intercooled or SE), available in Usite, Regenstein and Crerar. Check [www.stata.com](http://www.stata.com) for helpful information.
COURSE OUTLINE

**HSR Basics**

Mar 27  Introduction: What is Health Services Research?


Mar 29  Causality and Hypothesis Testing

- Shadish, Cook and Campbell, Chapter 1. (Also see Trochim.)

April 3  Validity

- Shadish, Cook and Campbell, Chapters 2 and 3. (Also see Trochim.)

**Review of Cross-Sectional Designs (with an HSR perspective)**

April 5  OLS, Linear Probability Models, and Logit/Probit

- Stock and Watson, pp. 297-322.

April 10  Interpreting Magnitudes

Applications:


April 12  Interaction Terms

- Stock and Watson, pp. 197-236.

April 17  Clustering and Robust Standard Errors

- Baum, pp. 133-139

**Use of Panel Data in Quasi-Experimental HSR Designs**

April 19  Introduction to Hierarchical Models
April 24  Fixed Effects and Random Effects
- Wooldridge, pp. 426-475.
- Stock and Watson, pp. 271-295.

April 26  Fixed Effects and Random Effects

Applications:

May 1  Difference-in-Differences Models
- Stock and Watson, pp. 373-409.

Applications:

Selection Issues in HSR and Several Methods for Addressing Them

May 3  Introduction to Selection Issues

May 8  Propensity Scores

May 10  Propensity Scores

Applications:

May 15  Instrumental Variables
- Woodridge, pp. 484-514.
- Stock and Watson, pp. 331-366.
- Harris KM, Remler DK. Who is the marginal patient? Understanding instrumental variables estimates of treatment effects. Health Serv Res. 1998 Dec;33(5 Pt 1):1337-60.

May 17 Instrumental Variables

Applications:

Analysis of Complex Survey Data

May 22 Introduction

May 24 Complex Survey Data

Applications:

May 29 Review and Conclusions

May 31 FINAL EXAM