EDUC-771: Topics - Panel Data and Event History Methods  
Fall 2017

Instructor: Brian McCall (bpmccall@umich.edu)
Office: 2108B SEB
Office Hours: Tuesday 10:00 a.m.-12:00 p.m. or by appointment
Phone Numbers: Office: (734) 647-8366
Cell: (612) 670-0377 (emergencies only).

Home page: http://www-personal.umich.edu/~bpmccall/index.html
Education Blog: http://mccalleconeduc.blogspot.com/

Optional Texts:


Other Books:


Learning Objectives:

By the end of the course students will have:

- gained knowledge of statistical methods for panel data and event history methods.
• gained the ability to critically assess government and academic reports and research articles that employ such methods.
• learned the Stata commands to be able to estimate such models and perform various statistical tests with such models.
• be able to use these methods to conduct their own research.

**Course Grading:**

A student’s grade will consist of their performance in three areas: class participation, homework, the group research project.

The relative breakdown of each of these areas in determining a student’s overall grade is as follows.

• **10% Class Participation**  
  ○ Class participation includes attending class and actively participating in all discussions, activities etc. during class  
  ○ At the end of the semester each student will write a brief summary of their participation activities during the semester.

• **30% Homework**  
  ○ Homework assignments must be turned in the day that they are due. Late homework assignments will receive a one grade reduction.

• **20% Article Presentation**  
  ○ Each individual will make a 20 minute presentation of a research article that employs the statistical methods discussed in class. Articles can be chosen either from the reading list or, subject to approval by the instructor, elsewhere. More information about the research project will be given later in the semester.

• **40% Research Project**  
  ○ The research project is a semester long project that will result in a research paper.  
  ○ One third of the grade is determined by a 30 minute presentation while two thirds of the grade is determined by an approximately 20 page paper.  
  ○ More information about the research project will be given later in the semester.
Software:

There are several statistical software programs, e.g., R, SAS, SPSS and Stata. For this class we will use Stata 15. Stata is a good software program for advanced statistical methods that I use in my research.

canvas:

Much of the communications for this course will be through a canvas worksite. This site includes:

- An electronic form of the syllabus.
- Chat room for discussions on difficult topics.
- Homework and Other Assignments.
- Additional Reading Material and PowerPoint slides used in lecture.
- Datasets.
- General Announcements.
- Web Content.

Data Sets Used in Class:

In this class many of the exercises in the homework as well as the group project will come from two data sets that are widely used in educational research.

National Education Longitudinal Study of 1988 (NELS) conducted by the National Center for Education Statistics.

Education Longitudinal Study of 2002 (ELS) conducted by the National Center for Education Statistics.


Integrated Postsecondary Education Data System (IPEDS) conducted by the National Center for Education Statistics.

Mid-Semester Evaluation:

At the halfway point in this course I will administer a mid-semester teaching evaluation. This is done in order for me to make some adjustments in the course based on student comments.
If you feel you need an accommodation for any sort of disability, please make an appointment to see me during my office hours.

Course Topics

Review of Discrete Choice Models:
- Overview of Dichotomous Choice Models
  - Maximum Likelihood Estimation
  - Logit/Probit Models
  - Estimating Logit/Probit Models with Stata
- Overview of Multinomial Choice Models
  - Multinomial Logit
  - Estimating Multinomial Logits with Stata

Event History Analysis:
- Introduction to Event History Analysis
  - Why do Event History Analysis
  - Terminology of Event History Analysis
- Single Spell Events
  - Continuous-time data
    - Parametric Methods
    - Non-parametric Methods
    - Adding Time-Constant Regressors
    - Cox regression
    - Adding Time-Varying Regressors
    - Models with Time-varying Coefficients
    - Models with Unobserved Heterogeneity
    - Estimating continuous time data models with Stata
    - Specification tests
    - Competing Risks Models
  - Discrete-time data
    - Parametric Methods

***Please turn cell phones off before entering the class***
• Flexible Methods
• Models with Unobserved Heterogeneity
• Estimating Discrete-time Duration Models with Stata
• Other topics
  • Treatment effects
  • Multiple Imputation

Panel Data Models:

• Random Effects Linear Regression Models
• Fixed Effects Linear Regression Models
• Panel Data Models with Endogenous Regressors
• Dynamic Panel Data Models
• Panel Data Ordinal and Count Models
• Estimating Panel Data Models with Stata
• Multiple Spell Duration Models with Fixed and Random Effects

Additional Readings on Event History Analysis

(*) Indicates papers I will discuss in class


**Additional Readings on Panel Data**


