

University of Montana  
**ScholarWorks at University of Montana**

---

Syllabi

Course Syllabi

---

1-2014

## ECNS 560.01: Advanced Econometrics

Katrina Mullan

*University of Montana - Missoula*, [katrina.mullan@umontana.edu](mailto:katrina.mullan@umontana.edu)

Let us know how access to this document benefits you.

Follow this and additional works at: <https://scholarworks.umt.edu/syllabi>

---

### Recommended Citation

Mullan, Katrina, "ECNS 560.01: Advanced Econometrics" (2014). *Syllabi*. 1247.  
<https://scholarworks.umt.edu/syllabi/1247>

This Syllabus is brought to you for free and open access by the Course Syllabi at ScholarWorks at University of Montana. It has been accepted for inclusion in Syllabi by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact [scholarworks@mso.umt.edu](mailto:scholarworks@mso.umt.edu).

**ECNS 560: ADVANCED ECONOMETRICS**  
SPRING 2014 SYLLABUS

**LOGISTICS**

- Time:** Class: Tuesday and Thursday, 12.40-2.00pm  
Lab: Tuesday, 3.40-5.00pm
- Classroom:** Liberal Arts Building, Rm 401
- Instructor:** Katrina Mullan  
Email: [katrina.mullan@umontana.edu](mailto:katrina.mullan@umontana.edu)  
Phone: (406) 243-4655  
Office hours: Tuesday 9-10am and Thursday 3-4pm  
Liberal Arts Building, Rm 412
- Required textbook:** Wooldridge, J. M. (2013) *Introductory Econometrics: A Modern Approach*, 5<sup>th</sup> Ed. Mason OH: South-Western
- Course software:** Stata 13 – available in the Economics computer lab (LA 401). Also available for purchase through Stata GradPlan.
- Course website:** I will post data, homework assignments, readings and any additional information on the class Moodle page. Please check this regularly.
- Pre-requisites:** ECNS 403 or the consent of the instructor. To enroll in 500-level classes, undergraduates must have senior standing and a GPA of 3.00 or better.

**COURSE DESCRIPTION AND LEARNING OUTCOMES**

This advanced econometrics course will build on students' knowledge about OLS estimation of linear regression models. We will examine the assumptions made, and consider when and why these assumptions may not be valid, particularly in the context of estimating models with limited dependent variables, panel data, endogenous regressors, and sample selection. For these cases, we will study the principles and application of alternative models including probit and tobit models; fixed- and random-effect models; and instrumental variable models.

The course will emphasize the implementation of the models studied. Students will gain experience in the use of Stata to estimate and test the models, and the accurate interpretation of results obtained. There will be a course project, which will involve defining a research question, identifying relevant data, analyzing the data, and presenting and writing up the results.

***Learning Outcomes***

Students who successfully complete this course should understand:

- The assumptions required for OLS estimation, and the circumstances in which those assumptions may fail
- How to estimate, test and interpret models that go beyond OLS regression, including methods for instrumental variables, panel data, and limited dependent variables
- How to write do-files in Stata to manage data, estimate regression models, and export results
- How to select appropriate data and methods to answer a particular research question, and how to present and write about the results

## **COURSE STRUCTURE**

Class time will be spent on 1) lectures covering the principles of econometric estimation and hypothesis testing; 2) lab exercises to practice implementing the methods covered in the lectures; 3) discussion of practical issues relating to empirical economics research (e.g. finding data, writing about results); 4) discussion of published empirical papers.

Success in this course will require active participation both in class discussions and in putting the course material into practice.

## **GRADING**

Homework	35%
Empirical project	35%
Presentation	10%
Lab exercises	10%
Class participation	10%

### ***Assignments***

Homework will be assigned approximately every week. The assignments with due dates will be posted on Moodle. If you are unable to make it to class, you should email it or put it in my mailbox *before* the start of class on the due date. Homework assignments will include questions on the theoretical principles underlying the econometric models, interpretation of econometric results, computer exercises, and work with 'real' datasets. Answers should be typed, and graphs, tables and do-files should be included or appended as applicable. The two lowest homework scores during the semester can be dropped from the final grade.

The empirical project will be on the topic of your choice. It will require the definition of a research question; selection of a dataset and appropriate methods that will allow you to answer the research question; and clear presentation and discussion of results. Draft elements of the overall project will be submitted throughout the semester, and will contribute to the overall grade. Before the submission of the final project, each student will make a short presentation of their work to the class.

Lab exercises will be guided Stata problems that we will work through during the Lab time. Exercises must be completed and shown to me for full credit. Class participation will include attendance in class and active contribution to class discussion, particularly discussion of reading assignments.

## **ACADEMIC CONDUCT**

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University (for more details, go to: [http://life.umt.edu/VPSA/student\\_conduct.php](http://life.umt.edu/VPSA/student_conduct.php)). Students are expected to do their own work in their own words, without seeking inappropriate assistance in preparing for or completing exams or assignments. I require that you will work to uphold high standards of integrity.

## **STUDENTS WITH DISABILITIES**

Whenever possible, and in accordance with civil rights laws, The University of Montana will attempt to provide reasonable modifications to students with disabilities who request and require them. Please feel free to setup a time with me to discuss any modifications that may be necessary for this course. For more information, visit the Disability Services for Students website at <http://www.umt.edu/disability>.

**OUTLINE SCHEDULE**

<i>Week</i>	<i>Begins</i>	<i>Tentative topics (we may go faster or slower)</i>	<i>Textbook</i>	<i>Readings (prepare to discuss by Tuesday of the assigned week)</i>	<i>Assignments (all assignments to be handed in at the start of class)</i>
1	Jan 27	What is Econometrics	Ch. 1	Ch. 3 & 4, Stata User Guide	
2	Feb 3	Simple regression review	Ch. 2	Ch. 19 Wooldridge	Homework 1 – Feb 6
3	Feb 10	Multiple regression review	Ch. 3	Anwar et al. (2012)	Homework 2 – Feb 13 <i>etc.</i>
4	Feb 17	Multiple regression: inference	Ch. 4	Ch. 3 & 4 of Booth et al. (2008)	
5	Feb 24	Multiple regression: further issues	Ch. 6 & 7	Alesina et al. (2013)	Project topic and data – Feb 25
6	Mar 3	Multiple regression: specification	Ch. 8 & 9	Nikolov et al. (2013)	
7	Mar 10	Panel data: pooled OLS	Ch. 13	Abrams (2012)	
8	Mar 17	Panel data: fixed effects, random effects	Ch. 14	Hirschberg et al. (2005)	
9	Mar 24	Instrumental variables	Ch. 15	Bleakley (2010)	Project proposal – Mar 25
10	Mar 31	Spring Break – no classes	-	-	
11	Apr 7	Limited dependent variables: probit	Ch. 17	Miller (2008)	
12	Apr 14	Limited dependent variables: tobit	Ch. 17	Angrist and Pischke (2010)	
13	Apr 21	Presentations	-	-	Project presentation – Apr 22/24
14	Apr 28	Program evaluation methods	-	Pfaff et al (2009)	
15	May 5	Program evaluation and review	-	Duflo et al. (2012)	Final project – May 6
16	May 12	Exam week			