

Montana State University Department of Ag. Economics and Economics	
Course:	Professor:
ECNS 561 –Econometrics I Fall 2020	Dr. W. Stock Office: 110 Linfield Hall Phone: 994-7984 E-mail: <a href="mailto:wstock@montana.edu">wstock@montana.edu</a> Web: <a href="http://www.montana.edu/stock">www.montana.edu/stock</a> WebEx: <a href="https://montana.webex.com/meet/b53z413">https://montana.webex.com/meet/b53z413</a>
Hours & Location:	Office Hours (all in WebEx):
T & TH 1:40-2:55 LINH 109	T & TH: 3:00-4:00, or by appointment

**READ THIS SYLLABUS.** IT REPRESENTS A CONTRACT BETWEEN YOU AND THE INSTRUCTOR OF THIS COURSE. YOUR CONTINUED ENROLLMENT IN THE COURSE WILL BE INTERPRETED AS YOUR ACCEPTANCE OF THIS CONTRACT.

The amount of learning you gain from class is directly related to the amount of effort you put into it.

**Course Description and Course Objectives:** ECNS 561 provides students with a background in basic principles of econometrics, regression analysis, and applications.

**Texts:** Wooldridge, Introductory Econometrics (any edition); Baum, Introduction to Modern Econometrics Using Stata

**Problem Sets:** We will have five problem sets during the semester. The problem sets are designed to be primarily applied (as opposed to theoretical) in nature, in order to give hands on experience with the topics we discuss in class. They will involve the use of statistical software. You can choose which to use, but Stata is available on all graduate student computers and in computer labs on campus, and is the program for which I can best provide assistance. Although they will not be collected or graded, we will discuss the problem sets in class and the exams will draw from them. As with most subjects, econometrics is best learned by practicing and applying the ideas. Therefore, I strongly encourage you to work through the problem sets and come to class prepared to discuss them.

**Lab Exercises:** On some Thursdays, we will have a short “lab” session during class to work through your answers to assignments designed to help you apply the econometric concepts learned in the lecture and readings to a typical econometric research project. These assignments are short and designed to be completed in less than an hour, provided that you have prepared adequately by working through the pre-lab exercises (described below). The lab assignments and related data are on the course D2L site.

**Pre-lab Exercises:** Pre-lab exercises are designed to help you work through some of the commands and techniques used in Stata on your own. The pre-lab exercises are available on the class website. Data for the pre-lab assignments are in the course D2L site. Your written answers to the pre-lab assignments will be collected and graded, and you should upload your answers to the class website before each Thursday’s class.

**Exams: We will have one midterm and one final exam.** The exams may cover any material from the assigned readings, as well as any additional material that I cover in class. You are required to take exams at the scheduled time. No makeup exams will be given. If you miss an exam for any reason, the final exam grade will be applied to that midterm.

**Course Project:** The learning objectives of the project include developing a hypothesis, understanding of logical research sequencing, data gathering and organization, research organization and structure, improving written communication skills, and improving critical analysis skills. To meet these learning objectives, you are required to conduct an original econometric study. This involves developing a hypothesis to test using economic theory and the statistical techniques learned in the course, gathering data, identifying potential statistical problems, solving those problems where possible, and writing an original research paper on the topic.

Although your study can be a test of a new hypothesis or an extension of a published study, most students find it useful to use the project as a springboard to their master's thesis. Regardless of your stage in the program, ***the project must be new and original work for you*** (no recycling of existing work or papers, no work on an existing project for a professor, no partially completed theses) and should use **only** the estimation techniques we discuss in class (i.e., OLS or GLS).

- ***Responsible Conduct of Research:*** Being a good researcher means adhering to ethical norms and standards of behavior. An understanding of responsible research conduct as it relates to authorship, collaborative research, conflicts of interest, data management, mentoring, peer review, research misconduct, plagiarism, and research involving human subjects is vitally important regardless of one's particular discipline or research focus. This assignment provides training in each of these core responsible conduct of research areas. This assignment is available on the class D2L site.
- ***Project Topic:*** You are required to turn in a typed page or two describing the topic you intend to study in your paper. This should include a clear explanation of the hypothesis you intend to test.
- ***Presentation:*** You will give a relatively short in-class presentation of your research (+/-10 minutes) during the last week of the semester. The quality of analysis and the clarity of the presentation will determine your grade on the presentation.
- ***Final Paper:*** This should be a relatively short paper research paper (+/-10 pages, plus carefully constructed tables). The quality of writing and the clarity with which the research is presented will be important determinants of the grade on the project. The final paper is **due 11/19**.

**Grading:** The midterm exam, final exam, and final paper will each count for 100 points. The pre-lab assignments will count for 10 points each. The in-class presentation will count for 25 points.

**Academic Integrity:** Please read and comply with the student conduct expectations contained in the *Student Responsibilities* section of MSU's "*Conduct Guidelines and Grievance Procedures for Students*," available online at [http://www.montana.edu/policy/student\\_conduct/#studentrespon](http://www.montana.edu/policy/student_conduct/#studentrespon). Violations of academic integrity diminish the value of a degree earned at MSU (negative externalities!!) and cheating will result in failure on the assignment and/or the course and all other disciplinary sanctions possible.

**Masks:** Wearing masks in class is required. Face coverings that cover your nose and mouth are required in all indoor spaces and all enclosed or partially enclosed outdoor spaces. MSU requires all students to wear face masks or cloth face coverings in classrooms, laboratories and other similar spaces where in-person instruction occurs. MSU requires the wearing of masks in physical classrooms to help mitigate the transmission of SARS-CoV-2, which causes COVID-19. The MSU community views the adoption of these practices as a mark of good citizenship and respectful care of fellow classmates, faculty, and staff. Individuals whose unique and individual circumstances require an exception to the face covering requirement, as indicated by a medical professional, may request one in accordance with the campus ADA policies. Students should contact the Office of Disability Services at 994-2824 or [drv@montana.edu](mailto:drv@montana.edu) to receive written permission from the Office of Disability Services at MSU. It is strongly recommended that students make contact prior to arriving on campus in order to provide adequate time for their request to be evaluated.

**Health-Related Absences:** Please evaluate your own health status regularly and refrain from attending class and other on-campus events if you are ill. MSU students who miss class due to illness will be given opportunities to access course materials online. You are encouraged to seek appropriate medical attention for treatment of illness. In the event of contagious illness, please do not come to class or to campus to turn in work. Instead notify me by email about your absence as soon as practical, so that accommodations can be made. Please note that documentation (a Doctor's note) for medical excuses is not required.

**Online Transition:** If the class needs to transition to online only, all announcements, assignments, etc. will be in D2L.

**Diversity Statement:** It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender identity, sexual orientation, disability, age, socioeconomic status, ethnicity, race, religion, culture, perspective, and other background characteristics. Your suggestions about how to improve the value of diversity in this course are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, in scheduling exams, I have attempted to avoid conflicts with major religious holidays. If, however, I have inadvertently scheduled an exam or major deadline that creates a conflict with your religious observances, please let me know as soon as possible so that we can make other arrangements.

**Inclusivity Statement:** I support an inclusive learning environment where diversity and individual differences are understood, respected, appreciated, and recognized as a source of strength. We expect that students, faculty, administrators and staff at MSU will respect differences and demonstrate diligence in understanding how other peoples' perspectives, behaviors, and worldviews may be different from their own.

**Disability Statement:** If you are a student with a disability and wish to use your approved accommodations for this course, please contact me during my office hours to discuss. Please have your Accommodation Notification or Blue Card available for verification of accommodations. Accommodations are approved through the Office of Disability Services located in SUB 174. [Please see Disability Services for more information by clicking here.](#)

(WEEK) DATES	TOPIC	WOOLDRIDGE READINGS	Assignments	Pre-lab (Complete & upload before Thursday class)	Lab (Complete & ready to discuss in Thursday class)
(1) 8/18-8/20	Introduction & Overview	1, 19			
(2) 8/25-8/27	Mathematical Foundations Probability Foundations	Appendix A Appendix B	Responsible Conduct of Research Due 8/27	Pre-lab 1: Introduction to Stata, Using Stata data, Stata syntax basics, Creating an IPUMS data extract	Lab 1: Probability & Statistics
(3) 9/1-9/3	Mathematical Statistics Foundations Fundamentals of Estimation and Hypothesis Testing	Appendix C	PS1	Pre-lab 2: Using non-Stata data, getting descriptive statistics, creating new variables, using the "if" qualifier	Lab 2: Populations & Samples
(4) 9/8-9/10	Fundamentals of Estimation and Hypothesis Testing Matrix Algebra	Appendix C Appendix D	Topic Due 9/10	Pre-lab 3: Estimation of univariate model, introduction to do-files and log- files	Lab 3: Hypothesis Testing & Confidence Intervals; do-files and log files
(5) 9/15-9/17	Two Variable (Simple) Regression Model: Definition & Estimation Linear Regression in Matrix Form	2 Appendix E	PS2		Lab 4: OLS Estimation & Interpretation, OLS Estimator Distribution

(6) 9/22-9/24	Simple Regression Model: Assumptions, Properties, Functional Form, Binary Variables	2			Lab 5: Hypothesis Testing & Confidence Intervals, do-files and log-files
(7) 9/29-10/1	<b>Midterm Review</b> <b>Midterm</b>		PS3		
(8) 10/6-10/8	Multiple Regression Model: Estimation Multiple Regression Model: Properties	3		Pre-lab 4: Combining sets, cleaning data, hypothesis testing and confidence intervals	
(9) 10/13-10/15	Multiple Regression Model: Inference	4		Pre-lab 5: Multiple regression model estimation, hypothesis testing, and confidence intervals	Lab 6: Omitted Variables
(10) 10/20-10/22	Multiple Regression Model: Inference	4	PS4		Lab 7: Hypothesis Testing & Confidence Intervals, Complex Datasets
(11) 10/27-10/29	Multiple Regression Model: Applications & Issues	5			Lab 8: Functional Form

(12) 11/3-11/5	<b>No Classes 11/3 – Election Day</b> Multiple Regression Model: Applications & Issues	6, 7		Pre-lab 6: Graphics	
(13) 11/10-11/12	Multiple Regression Model: Dummy Variables	7	PS5	Pre-lab 7: Estimation with dummy variables and interaction terms	Lab 9: Dummy Variables & Interactions, Difference in Difference estimation
(14) 11/17-11/19	Multiple Regression Model: Specification & Data Issues Presentations	8,9	Paper Due 11/19		
11/24	<b>Final Exam</b> 1:40-2:55 LINH 109				