

Course Syllabus

Introduction to Econometrics

ECON 413.02/Fall 2021

Instructor: Michael G. Zdinak, Ph.D.

Class Meeting Time: T/TH: 1:00-2:20PM; Class Location: Seigle Hall 106

Office Hours: T 2:30-3:30PM and TH 12:00-1:00PM in Seigle Hall 351

Email address: zdinakmg@wustl.edu

Assistance in Instruction: TBA

Prerequisite: Econ 1011 & 1021 and Math 2200, or the equivalent.

Required Text:

1. Using Econometrics: A Practical Guide 7th Edition, A. H. Studenmund, Pearson Addison Wesley, 2016. ISBN: 978-0-13-418274-2.
2. Using Stata—free, can be found at www.pearsonhighered.com/studenmund

Statistical Software Package: All students will need access to STATA, which is available in our computer labs. However, if you want to have direct access on your home computer, you can consider purchasing a student license at a reduced rate from www.stata.com/order/new/edu/gradplans/student-pricing. Problems with accessing Stata will not be a valid reason for incompleteness of your work.

Course Description and Objectives: This is a theoretical and empirical course which provides students with the theoretical tools and practical experience necessary to do applied econometric research. We will explore basic techniques that allow us to analyze real world data to study economic concepts, theories, and phenomena. You will use statistical software like STATA for hands-on econometric exercises and research projects that are designed to provide experience working with the techniques covered in class.

By the end of the semester, you should be able to understand: 1. regression analysis, including specification of regression models, ordinary least squares, and the classical model; 2. hypothesis testing and confidence intervals; 3. classical assumptions and violations of the classical assumptions including multicollinearity, serial correlation, and heteroscedasticity; 4. alternative models including time series, dummy dependent variable models, and fixed effects regression; 5. how to use STATA to work with actual data to make forecasting, predictions and answer cause-and-effect questions.

Exams: There will be one midterm exam and one final exam. The final exam is not comprehensive though knowledge from prior chapters can be helpful. Schedules are listed under the tentative course outline. No make-up exams will be allowed unless you have a documented illness, family emergency, or other approved absence.

Problem Sets: There will be 8 problem sets throughout the semester. They serve primarily to provide students with experience using statistical software packages and to reinforce the concepts learned in class. Those homework assignments must be submitted in electronic format via Canvas by the specified due dates and times. Late submissions will be subject to a 5% deduction of the assignment's grade for each day after the delay. After the solutions (3 days after the due date) are posted, you will receive a score of zero for that assignment. Your lowest score on the assignments will not be included for the overall grade calculation. Discussion with your peers or the instructor is allowed, although the final write-up and data analysis must reflect your own understanding of the materials. Scores of zero will be assigned in cases where two or more students turn in (nearly) identical work.

Research Proposal: Read Chapter 3 and 11 of the textbook to prepare for your research proposal. More details will be found on Canvas. Late submission is also subject to a 5% penalty each day after its due date.

Class Participation and Course Website: Reading the textbook chapter(s) as well as the recommended materials, active participation in class and completion of the assigned questions and problem sets after class are crucial steps for success in this class. Course material or information will be updated throughout the semester via Canvas.

If you miss class, it is your responsibility to find out what you missed, get notes from peers, etc. Students are expected to have read the assigned materials before class, contribute to discussions, and listen to each other and the professor. There will be several in-class econometric lab exercises throughout the semester which will factor into the participation grade. Full participation credit will be given to those who have finished and submitted 90% of in-class group projects/quizzes.

Grades: The following total weights will be used to compute your final grade at the end of the course. Any grade below a C- will be a fail under pass/fail.

<u>Evaluation Item</u>	<u>Percentage</u>
Midterm Exam	25%
Final Exam	30%
Problem Sets	30%
Research Proposal and Presentations	10%
Class Participation and Attendance	05%
Total	100%

The usual grading scale applies, 97-100 A+, 93-96 A, 90-92 A-, 87-89 B+, 83-86 B, 80-82 B-, 77-79 C+, 73-76 C, 70-72 C-, 67-69 D+, 63-66 D, 60-62 D-, <60 F.

Drop Policy: University Policies and Procedures will be followed. You are responsible for being aware of any deadlines that might apply. Students are encouraged to familiarize themselves with the university's academic calendar as well as the individual calendars for their respective schools, registrar.wustl.edu/student-records/registration/semester-academic-dates-deadlines.

Academic Dishonesty or Misconduct: Academic dishonesty and misconduct that include but are not limited to cheating and plagiarism are not tolerated. Any academic misconduct will result in a failing grade for the course as well as academic disciplinary action.

If you ever feel that these standards of academic integrity are not being met, please notify me or an undergraduate advisor immediately. If you are uncertain about the policies regarding academic integrity at Washington University in St. Louis, please refer to the following, wustl.edu/about/compliance-policies/academic-policies/undergraduate-student-academic-integrity-policy.

Disabilities: If any member of this class feels that he/she has a disability and needs special accommodations of any nature whatsoever, I will work with you and Disability Resources to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please advise me of such disability and the desired accommodations at some point before, during, or immediately after the first scheduled class period.

COVID-19 Health and Safety Protocols

Exceptions to course attendance policies, expectations, and requirements because of a COVID-19 diagnosis, symptoms consistent with COVID-19, or exposure to a person with a confirmed or suspected COVID-19 diagnosis that requires quarantine or isolation will be made in collaboration between the student and instructor. In these cases, please notify your instructor as soon as possible to discuss appropriate accommodations.

While on campus, it is imperative that students follow all public health guidelines established to reduce the risk of COVID-19 transmission within our community. The full set of University protocols can be found at covid19.wustl.edu/health-safety. This includes:

- Completing a self-screening using the WashU COVID-19 Screening app every day before coming to campus or leaving your residence hall room. If you do not receive a green check and pass the screening, you are not permitted to come to campus or leave your residence hall room.
- You must contact the COVID Call Center (314-362-5056) or the Habif Health and Wellness Center (314 935-6666) immediately. Note: In addition to the symptoms listed in the screening tool, everyone also should pay attention to symptoms that are new or different for you, including things like headache and congestion, particularly in combination with diarrhea. These can also be signs of COVID-19. Call the COVID Call Center or Habif to report these symptoms.
- Complying with universal masking. All individuals on campus must wear disposable masks or cloth face coverings while occupying indoor public settings, including: multi-person offices, hallways, stairwells, elevators, meeting rooms, classrooms and restrooms. Masks are encouraged but not required for outdoor activities, particularly at large events or in crowded settings. Students with disabilities for whom masked instructors or classmates create a communication barrier are encouraged to contact Disability Resources (disability.wustl.edu) or talk to their instructor for assistance in determining reasonable adjustments. Adjustments may involve amplification devices, captioning, or clear masks but will not allow for the disregard of mask policies.
- Maintaining physical distancing as needed. While distancing requirements have been removed for vaccinated students, those who are not fully vaccinated are strongly encouraged, for their own health, to maintain a distance of 6 ft from others in the classroom. If you are not able to be vaccinated or have conditions that may put you at increased risk of failed immunity and classroom activities would bring you in frequent proximity to other students, contact your instructor to discuss alternatives.
- Practicing healthy personal hygiene, including frequent handwashing with soap and warm water for at least 20 seconds and using hand sanitizer with at least 60% alcohol.

Disclaimer: The content of this syllabus is subject to change. If there is any such change, I will notify you in class and provide you with an updated version of the syllabus.

Tentative Course Outline

Class	Date	Academic Calendar	Lesson Plan	Deadlines
1	T, Aug. 31, 2021	First Day of Class	Introduction; Syllabus	
2	H, Sep. 02, 2021		Introduction, Ch.1. What is Econometrics	
3	T, Sep. 07, 2021		STATA Introduction; Regression Analysis, Ch. 1.	
4	H, Sep. 09, 2021		Review of Statistics, Ch.17, 6th Edition	
5	T, Sep. 14, 2021		Introduction to OLS, Ch.2 & Ch.3	HW 1
6	H, Sep. 16, 2021		Ch.3 (cont'd)	
7	T, Sep. 21, 2021		The Classical Model, Ch.4	
8	H, Sep. 23, 2021		Ch.4 (cont'd)	HW 2
9	T, Sep. 28, 2021		Hypothesis Testing, Ch.5	
10	H, Sep. 30, 2021		Ch.5 (cont'd)	HW 3
11	T, Oct. 05, 2021		Review; Extra Office Hours (TBA)*	
12	H, Oct. 07, 2021		Midterm Exam (1:00-2:20PM)*	
	T, Oct. 12, 2021	Fall Break—No Class		
13	H, Oct. 14, 2021		Specification, Ch.6 Variable Selection	
14	T, Oct. 19, 2021		Ch.6 (cont'd)	
15	H, Oct. 21, 2021		Specification, Ch. 7 Functional Form	HW 4
16	T, Oct. 26, 2021		Ch.7 (cont'd)	
17	H, Oct. 28, 2021		Multicollinearity, Ch.8	HW 5
18	T, Nov. 02, 2021			
19	H, Nov. 04, 2021		Serial Correlation, Ch.9	
20	T, Nov. 09, 2021		Ch.9 (cont'd)	
21	H, Nov. 11, 2021		Heteroskedasticity, Ch.10	HW 6
22	T, Nov. 16, 2021		Ch.10 (cont'd)	
23	H, Nov. 18, 2021		Dummy Dependent Variables, Ch.13	HW 7
24	T, Nov. 23, 2021		Ch.13 (cont'd)	
	H, Nov. 25, 2021	Thanksgiving—No Class		
25	T, Nov. 30, 2021		Time Series, Ch.12; Forecasting, Ch.15 **	
26	H, Dec. 02, 2021		Experimental and Panel Data, Ch.16 **	HW 8
27	T, Dec. 07, 2021		Research Proposal Presentations	
28	H, Dec. 09, 2021	Last Class	Research Proposal Presentations (cont'd); Review	Proposal
	T, Dec. 14, 2021	Reading Week	Extra Office Hours (TBA)	
	H, Dec. 16, 2021			
	T, Dec. 21, 2021	Finals Week	Final Exam (1-3 PM)	

* Midterm time corrected. Office hours added. ** Special topics to be covered as time permits.