

ECO 5720
Applied Econometrics
Spring 2024

Instructor: Jayjit Roy

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Student Office Hours: Monday, Wednesday 11:00 a.m.-12:30 p.m. (in-person or via Zoom); Friday 11:00 a.m.-12:30 p.m. (via Zoom); and by appointment.

Communication Expectations: Please do not hesitate to email me with questions. I should be able to respond within 24 hours.

Course Description: The goal of this course is to equip students with the basic skills required to (i) ask empirical questions, (ii) conduct associated regression analyses, and (iii) interpret findings accurately. In addition to the basic concepts of linear regression, topics covered will include non-linear specifications, binary variables, heteroskedasticity, panel data, instrumental variables, and limited dependent variables. The statistical software *Stata* will be used, but no prior knowledge of the software is required.

Required E-Textbook and Software: *Introductory Econometrics: A Modern Approach-7th ed.*, by Jeffrey M. Wooldridge. The e-book is provided by Cengage Unlimited.

Other useful books include:

- *Causal Inference: The Mixtape*, by Scott Cunningham. The free online version is available at: <https://mixtape.scunning.com/>.
- *The Effect: An Introduction to Research Design and Causality*, by Nick Huntington-Klein. The free online version is available at: <https://www.theeffectbook.net/>.

Grading: Grades will be based on exams, assignments, and presentations:

- Assignments will count for 20% of the course grade.
 - They must be submitted by specific due dates.
- Exams will count for 50%.
 - Two exams will count for 25% each.
 - Make-up exams will typically not be offered. If you are likely to miss an exam due to participation in a university-sponsored activity or religious observance, you should notify me in advance. In case of an emergency, see <http://academicaffairs.appstate.edu/syllabi>. For an excused missed exam, the make-up test should be taken before the next class meeting.
- Presentations will count for 30%.
 - Three presentations will count for 10% each.
 - For the presentations, please form groups of four and notify me by February 7. Depending on the number of students, some groups may have three or five members.
 - The first presentation will be based on papers published in economics journals. Groups can choose topics on a first-come, first-served basis. The presentation should address: (1) why the topic is interesting, (2) what analysis is performed, (3) what data are used, (4) what conclusions are drawn, and (5) what could be one specific direction of future research. You are expected to choose your topics by February 14.
 - For the second presentation, please discuss an empirical relationship that you wish to estimate. The presentation should address: (1) why the topic is interesting, (2) what data are available to conduct the analysis, (3) the specific empirical relationship to be estimated, and (4) the estimation strategy you consider most appropriate.

- For the third presentation, you will be given a dataset to estimate an empirical relationship. The presentation should address: (1) the choice of your estimation strategy, (2) the strengths of your empirical approach, and (3) the drawbacks of your chosen method.
- Additional details on the presentations will be provided closer to their respective dates.
- For the presentations, I will seek feedback on a student's participation from the other group members. If a student does not participate adequately for a presentation, a penalty of at least 50% of the assigned points will be imposed.
- You are expected to be present for all presentations.

At the end of the semester, the final percentage mark will be converted into a letter grade based approximately on the following scale:

Percentage: Grade	Percentage: Grade	Percentage: Grade
93-100: A	83-86: B	73-76: C
90-92: A-	80-82: B-	65-72: C-
87-89: B+	77-79: C+	0-64: F

Please visit <http://academicaffairs.appstate.edu/syllabi> for university policies pertaining to academic integrity, disability accommodations, religious observance, and student engagement.

It is your responsibility to make sure that you are officially registered for this course. If you are not officially registered, please do not expect to be added late.

Statistical Software:

- <https://www.stata.com/order/new/edu/profplus/student-pricing/>
- <https://stats.idre.ucla.edu/stata/>
- <https://www.youtube.com/user/statacorp>

Class Schedule:

Material	Date
<u>Course Introduction</u>	January 17
<u>Chapter 1: Random Variables, Econometrics and Economic Data</u>	January 22
<u>Chapter 2: The Simple Regression Model</u>	January 24 and 29
<u>Chapter 3: Multiple Regression Analysis – Estimation</u>	January 31 and February 5
<u>Chapter 4: Multiple Regression Analysis – Inference</u>	February 7 and 12
<u>Chapter 5: Multiple Regression Analysis – OLS Asymptotics</u>	February 14
<u>Chapter 6: Multiple Regression Analysis – Further Issues</u>	February 19

<u>Chapter 7: Multiple Regression Analysis with Qualitative Information</u>	February 21 and 26
Presentation 1	February 28
Exam 1 (on all topics covered so far)	March 4
<u>Chapter 8: Heteroskedasticity</u>	March 6
<u>Chapter 17: Limited Dependent Variable Models</u>	March 18 and 20
<u>Matching</u>	March 25 and 27
<u>Chapters 13 and 14: Pooled Cross Sections and Panel Data</u>	April 1, 3, and 8
Presentation 2	April 10
<u>Chapter 15: Instrumental Variables</u>	April 15 and 17
<u>Other Methods</u>	April 22 and 24
Presentation 3	April 29
<u>Discussion</u>	May 1
Exam 2 (on all topics covered since Exam 1)	May 6

Note: The schedule above may have to be modified as the semester progresses.