

ECO 5720
Applied Econometrics
Fall 2026

Instructor: Jayjit Roy

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Student Office Hours: Monday, Wednesday 11:00 a.m.-2:00 p.m. (in-person or 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 *R* will be used, but no prior knowledge of the software is required.

Required E-Textbook and Software: *Introductory Econometrics: A Modern Approach-8th ed.*, by Jeffrey M. Wooldridge. The e-book is provided by Cengage Unlimited.

Other useful books include:

- *Using R, Python and Julia for Introductory Econometrics*, by Florian Heiss. The free online version is available at: <https://urfi.net/>
- *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/>.
- *Causal Inference and Machine Learning: In Economics, Social, and Health Sciences*, by Mutlu Yuksel and Yigit Aydede. The free online version is available at: <https://www.causalmbook.com/>.
- *Causal Inference: What If*, by Miguel Hernán and James Robins. The free online version is available at: <https://miguelhernan.org/whatifbook>.

Grading: Grades will be based on presentations, exams, and class participation:

- Exams will count for 40%.
 - Two exams will count for 20% 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.
- Two presentations on econometric concepts will count for 30% (i.e., 15% each).
 - You can present individually or form groups of two. If you form a group, please notify me at least two weeks before each presentation. In case of groups, if a student does not participate adequately, a penalty of at least 50% of the assigned points will be imposed.
 - Additional details on the presentations will be provided at least two weeks prior to each date.
- A presentation on a research question will count for 20%.
 - You can present individually or form groups of two. If you form a group, please notify me at least two weeks before the presentation. In case of groups, if a student does not participate adequately, a penalty of at least 50% of the assigned points will be imposed.
 - Additional details on the presentation will be provided at least two weeks prior to the date.

- Class participation will count for 10%.
 - Throughout the semester, I will ask questions in class to make things interactive. Your responses will count towards this grade. I will typically use Poll Everywhere.
 - Your participation grade will be based on the proportion of questions that you participate in. For example, if there are 50 questions out of which you participate in 30, your participation will count for $(30/50) \times 10$, i.e., 6 in your final grade out of 100.
 - Although make-up polls will typically not be given, I will excuse 5 missed polls.

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.

The course engages diverse scholarly perspectives to develop critical thinking, analysis and debate. The inclusion of a reading material does not imply endorsement.

Class Schedule:

Material	Date
This portion of the syllabus will focus on introductory material such as review of random variables and types of economic data. We will then discuss simple and multiple linear regression models. The material discussed will be based on Chapters 1-7 of Wooldridge and a few chapters from Huntington-Klein.	
Presentation 1 (on econometric concepts)	September 23
Exam 1 (on all topics covered so far)	September 30

This portion of the syllabus will focus on topics such as limited dependent variables, panel data, and instrumental variables. The material discussed will be based on Chapters 8, 13-15, and 17 of Wooldridge, a few chapters from Huntington-Klein, and other sources.	
Presentation 2 (on econometric concepts)	November 30
Exam 2 (on all topics covered since Exam 1)	December 2
Presentation 3 (on research question)	December 4

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