Econ 211: Regression Analysis

SYLLABUS, SPRING 2025

Overview

"Regression analysis" describes the basic technique economists (and many other types of scientists) use to examine the empirical evidence for all the interesting theoretical questions that we dream up. Multiple regression techniques are used to estimate the effects of multiple exogenous variables on a variable that represents an outcome of interest. In this course, you will be introduced to the fundamentals of regression analysis: how to design and estimate a model, how to interpret the results, and how to critically analyze the validity of the techniques that you and others choose.

Instructor

Caitlin Myers
Email: cmyers@middlebury.edu
Office: WNS 015

Lectures

Lecture A: MW 9:45-11:00 AM in MBH 403
Lecture B: MW 11:15-12:30 PM in MBH 403

Labs

Lab X: T 1:10-2:00 PM in LIB 140
Lab Y: T 2:15-3:05 PM in LIB 140
Lab Z: T 3:20-4:10 PM in LIB 140

Office hours

M 1:30-2:30 PM drop-in WNS 002
W 3:00-4:00 PM by appointment
Th 11:00-12:00 PM drop-in WNS 002
Th 4:00-4:30 PM by appointment

Embedded tutors

This class has four embedded tutors. They will attend lectures and labs and hold drop-in tutoring hours four nights a week in LIB 140. You can find them at the following times:

Su 3:00-5:00 PM in LIB 140 (Jack McGuire)
M 7:00-9:00 PM in LIB 140 (Dorothea Mulcahy)
T 7:00-9:00 PM in LIB 140 (Jasmine Wang)
W 7:00-9:00 PM in LIB 140 (Maeve Nolan)

Platform

This course is organized into weekly modules on Canvas. There you will find assignments, grades, and additional resources. You should check Canvas frequently and also set up your notification settings to stay up to date with new postings. You can find a link to class videos on Canvas, or access them directly in our class folder on Panopto.

Key Dates

March 12: Exam 1
April 16: Exam 2
TBD: Final Exam

[Final exam dates are scheduled by the registrar's office. Ours could be as late as May 20. Do not schedule your departure from campus until the date is announced. You must be here in person to take the exam.]

Textbook

Jeffrey Wooldridge. 2020. Introductory Econometrics: A Modern Approach, 7th edition
Other course readings will be available via Canvas.

Data

In this course we will access and wrangle real data, in all their complex and messy glory. Some datasets will be posted to a shared Google Drive folder, while in other situations students will identify and download the data from other web-based sources.

Software

We will use the statistical software package Stata (v 18.0). Students can access Stata in campus computing labs and/or by installing Stata for free on their personal computers. While you are welcome to work in labs outside of class, you will also need to be able to access Stata on a personal laptop during class.

In addition to Stata, you also will need to use your Middlebury Google account

Class recordings

I record all lectures and labs and post these videos in the class folder on Panopto. Each student is responsible for "adopting" one class during the semester, which involves reviewing and correcting the automatic transcript and sharing their notes. While I (very) strongly encourage attending class, if you are sick or have other extenuating circumstances, you can watch this recording and review classmates' notes.

Assessment

Participation (10%) is evaluated by short open-note exercises posted to Canvas. These exercises will take the form of a short quiz, annotated reading, or response piece. I will drop your lowest two grades on a participation exercise.

Assignments (20%) are due most Mondays and offer more extensive opportunities to gain and demonstrate fluency with the methodologies covered in class. Assignments will be posted to Canvas and will include questions that you will answer with pencil and paper and questions that you will answer using Stata. Assignments should be submitted as one single pdf file on Canvas. Scanners to generate this pdf are available at various locations on campus. You also can use a free application such as Genius Scan that allows you to use your phone's camera to take pictures of your assignment and export it as a single pdf.

Exams (70%) offer the opportunity to demonstrate mastery of the methodologies learned in class. There are three exams in this course, two during the semester and the third during our assigned final examination period. Exams will be given in person and proctored. For each exam, you can sign up for one of three possible time slots to take the exam. Here is a link to sign up. You can change your selection through noon on the Monday prior to the exam. After that point your selection is fixed. Students who do not sign up are required to complete the exam during their assigned lecture period.

Grading scale

A	100% to 94%
A-	<94% to 90%
B+	<90% to 87%
B	<87% to 84%
B-	<84% to 80%
C+	<80% to 77%
C	<77% to 74%
C-	<74% to 70%
D	<70% to 60%
F	<60%

Grading

Participation exercises and exams are graded by your professor. Assignments are graded by four student graders with oversight from your professor. Each question on an assignment is graded by a single grader for consistency. Graders cannot see student names on the assignments.

Keys for exercises, assignments, and exams will be posted no later than the date grades are posted. If you have a question about point allocations, please email me with a clear written request and details within one week of the date it was returned to you. I only review point allocations in response to written request submitted within one week.

Late policies

All participation exercises, assignments, and exams are posted to Canvas with a due date and time. In general, participation exercises are due by 9am, before the start of the first section of class, and assignments are due by 11 pm on Mondays.

Late exercises assignments receive an automatic deduction of 5 points per day beginning the minute they are overdue. This is set on Canvas and deducted automatically without exception. Late exercises and assignments will not be accepted after 72 hours have passed from the due date.

To provide you with some grace, I automatically deduct your lowest two participation grades and your lowest assignment grade.

Exams are administered in-person. There are three possible time slots available to take exams administered during the semester, including an evening slot outside of class meeting times. Students are expected to be present and take the exam in person during one of these times.

If you have face extenuating personal or medical obstacles to completing your coursework, you may wish to contact your Dean. Class Deans may reach out on behalf of students in instances in which the student is taking an official temporary medical leave, has recently lost a loved one or if they are experiencing a significant and unanticipated challenge, if requested. In such circumstances, I will accommodate a change in exam schedule.

You may also have a valid excuse for missing an assignment or exam that is not covered in this list. Policies in this course are designed to provide built in flex for such

circumstances by dropping your two lowest quiz grades and lowest assignment grade. If you are experiencing an illness or other circumstances that do not qualify for a Dean's excuse but are preventing you from completing your work on time, please email me to request an extension. I will generally grant a one-time extension without much questioning, but subsequent requests or any request to miss an exam will be subject to greater scrutiny.

Honor code

The Middlebury College Honor Code requires students to neither give nor receive unauthorized aid on any assignment. In the course, you may use the following authorized sources on each type of assignment:

Participation exercises: You can use any resource except for another human being. You are allowed to consult notes, books, anything on the internet, and AI resources. The only aid that is not authorized is communicating with a classmate or other human being in any way.

Assignments: There is no limitation on the resources you can use. You are not only allowed but encouraged to work collaboratively on assignments with other students on assignments in this course. Collaboration will be facilitated during drop-in office hours and tutoring hours, which I expect will be well-attended and often function as collaboration sessions with some added help. However, the work that you turn in must be your own. Directly copying another student's work is an honor code violation. Please also note that while you may use AI to complete assignments, heavy reliance on AI without reflection is not likely to prepare you for exams.

Exams: You are permitted to bring (1) your brain, (2) one 8.5x11 inch sheet of paper with any notes you wish to write on the front and back, (3) a writing instrument and ruler, (4) a calculator. No other materials are permitted. You may not use a computer, phone, tablet, etc. All exams are proctored. Students will be asked to place all personal belongings, including smart watches, at the front of the room.

I take my responsibility to enforce the honor code seriously and will report any suspected instances of academic dishonesty. If you have any questions about the parameters of this policy, please reach out to me.

Proctoring

The Department of Economics proctors exams in our core courses. This choice reflects our commitment to the integrity of the academic experience of all our students. All exams in this course will be proctored by your professor or another Middlebury employee.

Accessibility Services

If you require additional accommodations sanctioned by the Student Disability Resource Center, please submit your letter within the first week of class or immediately upon receiving it. I will be happy to work with you to make this course accessible. I cannot do so without adequate notice as arranging for extended time requires recruiting a proctor and scheduling a room.

Email

Please restrict email to administrative matters or simple questions. Try not to email me with substantive questions on the course material. I request this simply because email is

generally an ineffective medium to communicate complex and nuanced economics topics. Rather, please ask your questions in class, after class, or during office hours and I will be happy to help. Also note that I generally do not respond to email during evenings, weekends, and holidays.

Attendance

We all hate to be sick! Be kind to your community and try to prevent the spread of germs. **If you are experiencing acute symptoms of illness, do not come in person to class, lab, or office hours**. Send me a quick email to let me know you won't be in class, and I'll thank you for protecting us all (no questions asked). You are responsible for making up your absence by watching a recording of the class (or lab) you missed and accessing notes taken by your peers, all of which will be posted to Canvas within 48 hours of the completion of class. You also should not attend in-person office hours but rather elect the option to schedule an appointment on Zoom. All assignments are submitted via Canvas, so being absent is not an obstacle to turning in an assignment. If you are experiencing symptoms of acute illness on the day of an exam, contact me and we will make alternative arrangements to taking it in a shared room with other students.

If you are recovering from illness or feel mildly ill, you are welcome in class, but please wear a mask.

Adopt a class

All students should "adopt a class" for an assignment grade. Adopting a class entails attending class in person (or remotely and then listening to the recording) and correcting the refining the computer-generated transcript that Panopto produces. Once you are done, you are responsible for posting a link to the video and transcript as well as a pdf file with your notes on the class message board on Canvas that is set up for these postings. In addition to the warm-glow of contributing to a public good and confidence of having a 100 on an assignment, this also is a great way to review class material!

The only catch is that you can't wait: you need to sign up in the first week of classes. Here's a link to sign up.

Schedule

Readings and short participation exercises are not indicated on the schedule; these will be posted to Canvas. Due dates for major assignments and exams are not subject to change.

	Date	Topics	Major assignments
Week 1	2/10	Introduction to the course + Review of the normal distribution	
	2/11	Introducing/Reviewing Stata	
	2/12	Statistics review: Hypothesis testing	
Week 2	2/17	Simple Linear Regression: Regression terminology & deriving the OLS estimator	**Assignment 1**
	2/18	Simple regression using student height data	
	2/19	Simple Linear Regression: Properties, goodness of fit, and changing units of measurement	
Week 3	2/24	Regression on a binary variable; Introducing Multiple Regression	**Assignment 2**
	2/25	Multiple regression using the Current Population Survey	
	2/26	More multiple regression: Bias, Efficiency, and the Gauss-Markov Theorem	
Week 4	3/3	Inference: T-tests for the statistical significance of a regression coefficient	**Assignment 3**
	3/4	Inference using the Current Population Survey	
	3/5	Inference: Testing hypothesis about a single linear combination of parameters; Testing multiple linear restrictions	
Week 5	3/10	How to read an empirical research paper	**Assignment 4**
	3/11	No lab, but will hold drop-in office hours during lab times	
	3/12	**Exam 1**	

	Date	Topics	Readings & Assignments
Week 6	3/24	Nonlinear relationships: Polynomials	
	3/25	Non-linear relationships in action	
	3/26	Non-linear relationships: Logs	
Week 7	3/31	Interaction effects	**Assignment 5**
	4/1	Interactions in Action	
	4/2	Binary dependent variables: The linear probability model	
Week 8	4/7	Binary dependent variables: Maximum Likelihood Estimation and Probit models	**Assignment 6**
	4/8	Binary outcomes in Action	
	4/9	More binary dependent variables: Practice and discussion	
Week 9	4/14	Review, practice, and discuss	**Assignment 7**
	4/15	No lab, but will hold drop-in office hours during lab times	
	4/16	**Exam 2**	
Week 10	4/21	The credibility revolution +Difference-in-Differences Estimation	
	4/22	Difference-in-differences in action	
	4/23	More difference-in-differences estimation	
Week 11	4/28	Research Practicum 1	**Assignment 8**
	4/29	Data viz in Stata	
	4/30	Research Practicum 2	

	Date	Topics	Readings & Assignments
Week 12	5/5	Research Practicum 3	**Assignment 9**
	5/6	Research Practicum 4	
	5/7	Tying it all together	
Exam 3 To be scheduled by the Registrar after the add/drop period. It could be as late as May 20			