ECON 491 (B3)
Decision-making
MSPE, Department of Economics
Fall 2023

Instructor:
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DKH 101-E
Office Phone: (217)-300-6027

Lectures: Tuesday/Thursday, 11:00 am-12:20pm in DKH 119

Office Hours:
- Individual office hours: Mon 3:30-4:30pm CT, Tues 1:30-2:30pm CT Schedule time **here.** Can also schedule alternative appointment if necessary. Office hours are an opportunity to discuss questions you have about the class, problems with the assignments, or broader topics related to the course material and economics/econometrics more broadly. Office hours are available in DKH 101-E or on zoom (zoom room here, passcode 160866).
- Group office hours: 2:00-3:00pm CT Thursday in DKH 101E. No appointment necessary.

Course Description: This course will help students think about how data and economics can be used to inform decision-making in policy, business, and life. Economists combine data with assumptions to draw conclusions about the impact of different actions that governments, firms, or people can take. The strength and credibility of these conclusions depend on the data and assumptions used, as well as the type of analysis conducted. This course studies key methodological and conceptual challenges in decision-making and provides students with some basic tools to conduct their own analyses. Concepts and skills will be illustrated through real world examples.

Course Goals: This course has four goals:
1) Learn about what combination of data + assumptions are needed to reach policy conclusions in different circumstances
2) Give students experience conducting data analysis themselves.
3) Communicate findings and policy implications clearly to others
4) Make students informed consumers of research and discussions of economic policy involving data

Prerequisites: Econ 202 and 203 are required for individuals taking this course. Please schedule a meeting with me if you have not completed these courses.   Econ 471 is also recommended, but is not required. The course assumes that students have knowledge of calculus, linear algebra, and basic statistics and econometrics. In particular, students should be familiar with basic multivariate calculus (first and second derivatives and how to obtain them), matrices and matrix operations, basic properties of random variables, calculating expectations, variances, correlations, conditional expectations and conditional variances, and multiple linear regression.

Relationship to other economics courses: This course is designed to be complementary with the Econ 490 class that Professor Eunyi Chung teaches on the econometrics of causal inference. Students are allowed and encouraged to take both courses.

Credits: 3 credits (option for 4 credits for masters students with additional research assignment described below)

Course structure: The course will be a lecture, along with discussion and activities. Students are expected to attend all classes and participate in all discussions and activities. I will cold call throughout the semester. To facilitate in class discussions, I will provide name placards on the first day that you all area expected to bring to class every day. Computers and phones are not allowed out during class unless the student has received prior approval from the instructor.

Readings
Posted readings are required. I will post readings for the subsequent week each Thursday on Canvas.

Additional materials, as well as assignments and practice materials will be available on Illinois Canvas (Illinois.canvas.edu). Announcements about assignments, readings, and other course items will be posted on Compass.

This course will use R, which is a free statistical computing language. R can be downloaded at http://www.r-project.org . Additional background materials on R will be provided throughout the course.

Requirements:
- *Assignments:* There will be 5 assignments that together will count for 30% of the grade. I will drop your lowest assignment score when computing this grade. The assignments will be due on:
  - Assignment 1: Sept 28
  - Assignment 2: Oct 12
  - Assignment 3: Oct 31
  - Assignment 4: Nov 14
  - Assignment 5: Dec 5
- *In-class reading responses:* Will take place at the start of class every Tuesday on that week's assigned reading (excluding the first week of class and the week when there is a midterm exam). The prompt will be provided by the instructor. These reading responses will make up 15% of the course grade. Students will be able to drop their 4 lowest scores on these reading responses.
- *Midterms:* There will be one midterm which will each count for 20% of the grade
  - Midterm: October 19th
- *Final Exam:* There will be a closed book, 3-hour exam during finals week which will cover the entire course material and be worth 35% of the grade. The final exam is currently scheduled for 8:00-11:00am on Friday, December 8th. Location TBD.

Extra Assignments for Those Taking for 4 Credits: Research proposal due on October 5th, Final Analysis due on December 5th. See instructor for more details.

Assignments: Will be mixture of problem sets, policy briefs, and essays.

Grading: Overall Grades will be on a +/- scale and may follow a curve.

Assessment Policies:
Assignment Policies:
Student grades on their lowest assignments will be dropped. All assignments are to be turned in on time on canvas in the format specified in the assignment. Late assignments receive *no* credit without an instructor approved excuse. Acceptable excuses include physical and mental illness, and personal or family emergencies. A written request for an extension must be submitted at least 48 hours in advance.

Assignments can be turned in early on canvas. You are encouraged to work as a group with your classmates on problems sets, although you have to hand in your own solutions.

Note that we cannot grade assignments that we cannot read. Consequently, please be careful to make all assignments legible (if they are not typed up, please make sure they are in legible handwriting and scanned clearly).

Exam Policy:
In the event that a student misses one of the exams, the instructor reserves the right to give the student a zero on that exam. There are no make-up exams without an instructor approved excuse. Instructor approved excuses include 1) medical reasons, in which case you should bring a letter from a medical professional describing your reason for missing the exam, 2) death or serious illness of an immediate family member or close friend (documentation required), or 3) conflict with a religious holiday. Requests for exam make-ups should be made as far in advance as possible.

We will follow the University guidelines on student conflicts with final exams. For this year's student code, see http://admin.illinois.edu/policy/code/article3_part2_3-201.html .

Regrades:
All regrade requests must be submitted in writing no more than one week after the assignment or exam is returned. The request must be written and include a detailed summary of why the student believes the grade they received was incorrect. I generally regrade the entire exam or assignment, so the grade may go up or down. Consequently, students should only request a regrade if they are very confident that the original grade they received was incorrect.

Statement on Academic Integrity
We will follow Articles 1-401 through 1-406 of the *Student Code* (beginning at http://studentcode.illinois.edu/article1_part4_1-401.html). This rule defines infractions of academic integrity, which include, but are not limited to, cheating, fabrication, and plagiarism. You are responsible for following these guidelines (ignorance is no excuse). If you have any questions about whether something would be an infraction, consult with the instructor before proceeding.

Accessibility and Requests for Special Accommodations:
This is a classroom committed to access. If there are any changes that can be implemented to facilitate your greater participation and learning, please don't hesitate to contact me so that we can make arrangements.

To obtain disability-related adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call (217)-333-4603, email disability@illinois.edu or go to the DRES website.

Please also schedule a private meeting with the course instructor to discuss your needs and requirements. The instructor will attempt to meet all reasonable course accommodations once the student self-identifies. Please note that accommodations are not retroactive to the beginning of the semester, but begin the day you contact the instructor with a current letter of accommodation from DRES.

Emergency Response Recommendations:
The university maintains guidelines for emergency responses. A list of recommendations when to evacuate and when to find shelter are available at:

http://illinois.edu/cms/2251/general_emergency_response_recommendations_8_16_13_final.docx
Floor plans for specific buildings are available at: http://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/

Course Schedule (tentative)

1	Aug 22	Course overview, logistics, and introduction
	Aug 24	Decision theory I: basics
2	Aug 29	Decision theory II: Example
	Aug 31	Decision theory III: Comparing decision criteriaApproaches to causal inference
3	Sept 5	Causal inference I: potential outcomes framework
	Sept 7	Causal inference II: example
4	Sept 12	Causal inference III: empirical approaches to causal inference
	Sept 14	Introduction to R: R Basics
5	Sept 19	Introduction to R II: Decision-making using R
	Sept 21	Prediction I: prediction and decisions
6	Sept 26	Prediction II: prediction R example
	Sept 28	Prediction III: approaches to prediction
7	Oct 3	Descriptives I: descriptives and decision-making
	Oct 5	Descriptives II: descriptive example in R
9	Oct 10	Descriptives III: approaches to producing useful descriptive statistics
	Oct 12	Challenge of extrapolation I
10	Oct 17	Challenge of extrapolation II
	Oct 19	**Midterm**
11	Oct 24	Challenge of extrapolation III
	Oct 26	Dynamic decision-making I: basics
12	Oct 31	Dynamic decision-making II: robust policy-making
	Nov 2	Dynamic decision-making III: R example
13	Nov 7	Example I: climate policy
	Nov 9	Example I: climate policy
14	*Nov 14*	Example I: covid-19 policy
	Nov 16	Example II: covid-19 policy
15	Nov 21	*Thanksgiving break*
	Nov 23	*Thanksgiving break*
16	Nov 28	Example III: pro-active policing

	Nov 30	Example III: pro-active policing
17	Dec 5th	Course recap