

ECON 3900A

Research Methods in Economics

Fall 2026

Department of Economics, Carleton University

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Office	LOEB-D888
Office Hours	10 to 11 am, Wednesdays and Fridays
Lectures	11:30 am to 2:30 pm, Wednesdays, in SA 517
Course Delivery	Primarily in person. At most two lectures may be delivered online or pre-recorded.

Course Overview

This course introduces students to the process of conducting empirical research in economics. The course focuses on how economists move from a broad topic to a well-defined research question, connect that question to economic theory and existing literature, identify appropriate data, choose an empirical strategy, evaluate causal claims, and communicate research findings. Particular attention is given to research design and identification, including experiments, natural experiments, instrumental variables, difference-in-differences, and regression discontinuity designs.

A central component of the course is a semester-long group research project. Students will work in groups of approximately five. During the latter portion of regular class meetings, groups will work on their projects and discuss research design, data, literature, and results. Near the end of each lecture, one member of each group will report on the group's progress on a rotating basis. The typical lecture combines approximately 60-75 minutes of formal lecture with supervised research, discussion, and student presentations.

Learning Outcomes

- Formulate a focused, feasible, and economically meaningful research question.
- Search for, read, summarize, and critically evaluate economics journal articles.
- Use economic theory to motivate hypotheses and empirical specifications.
- Identify appropriate economic data and evaluate measurement and sample-construction issues.
- Distinguish descriptive relationships from causal effects and explain the role of a counterfactual.
- Understand the logic and identifying assumptions behind experiments, natural experiments, instrumental variables, difference-in-differences, and regression discontinuity designs.
- Develop, present, and defend an economic research design as part of a research team.
- Write a concise research report in the style of an applied economics paper.

Prerequisites and Expected Preparation

Prerequisite(s): ECON 3020 with a grade of C+ or higher, ECON 3102 with a grade of C+ or higher, ECON 2210 (or equivalent) with a grade of C- or higher, and ECON 3210 (or equivalent) with a grade of C+ or higher.

Students are expected to have familiarity with algebra, statistics, regression analysis, and introductory econometrics. The emphasis is on applying these tools to economic research rather than on deriving econometric estimators.

Communication

If you need to email the instructor, please use your Carleton email address and include ECON 3900A in the subject line. Course announcements, lecture materials, readings, project instructions, and any changes to the schedule will be posted on Brightspace.

Required Readings and Cost of Educational Materials

Students are not required to purchase a textbook or other learning materials for this course. Required journal articles will be available through the Carleton University Library, Brightspace, or other no-cost sources. Selected chapters from accessible methodological resources may also be assigned.

Course Organization and Group Research Project

Students will be assigned to groups of approximately **five** early in the semester. Each group will develop one research project over the semester. The project should pose a clear economic question, engage with relevant literature, describe the economic mechanism or hypotheses, identify suitable data, and develop an empirical strategy. Depending on feasibility, groups may either carry out an empirical analysis or present a detailed research design with preliminary descriptive evidence.

After the formal lecture portion of regular class meetings, class time will be devoted to group research. One student from each group will give a short progress report on a rotating basis. The reporting responsibility should rotate so that all group members have an opportunity to present during the term. Presentations will be graded on preparation, clarity, understanding of the group's research decisions, responsiveness to questions, and evidence of progress.

Attendance will be recorded using a sign-in sheet. Because the second part of each class is an integral part of the research project and involves group participation, regular attendance is expected.

Evaluation

Component	Weight	Format
Midterm Examination	30%	In person, closed book; first 60 minutes of class on October 21 .
Final Examination	40%	In person, closed book, cumulative; scheduled by the University during the examination period.
Group Progress Presentations	10%	Individual presentation grade based on rotating reports on the group's research progress.

Attendance and Participation	10%	Attendance recorded by sign-in sheet; active participation in the group research portion is expected.
Group Research Report	10%	One final report submitted by each group at the end of term.

The relevant list of topics for each examination will be made available at least seven days before the examination. Unless otherwise announced, students may bring only a pen/pencil, eraser, and ruler to examinations.

Missed Midterm Examinations

Students who miss a midterm examination for a reason that qualifies for academic consideration will have the weight of that midterm transferred to the final examination. Students should follow the University's applicable academic consideration and accommodation processes.

Lecture Topics and Indicative Schedule

The sequence below is the planned structure of the course. The pace may be adjusted during the term. Regular classes will normally include approximately 60-75 minutes of lecture followed by group research work, consultation, and rotating progress reports.

Week	Topic	Core Content	Indicative Reading
1	What Is Economic Research? How can I use Generative AI?	Research questions; descriptive versus causal questions; theory and evidence; Generative AI and your research.	Card (1990)
2	Developing a Research Question, as well as the basic structure of a research paper	From broad topics to testable questions; structure of an economics paper; abstracts and introductions; basic Latex programming;	Card (1990)
3	Finding and Evaluating the Literature	Literature searches; citations; reading papers efficiently; literature reviews.	
4	Economic Models, Mechanisms, and Hypotheses	Role of economic theory; mechanisms; translating theory into predictions; reduced-form and structural approaches.	One article to be assigned
5	Data and Measurement	Cross-sections, time series, panels, surveys and administrative data; variable construction; samples; measurement error; Statistics Canada and other data sources.	One article to be assigned

6	Descriptive Analysis and Regression	Distributions, means, correlations, graphs and tables; regression as description; controls; communicating empirical patterns.	
7	Causality and Identification	Potential outcomes; counterfactuals; selection bias; omitted variables; internal and external validity.	Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz (2016)
8	Experiments and Natural Experiments	Randomized experiments; field experiments; treatment and control groups; natural experiments.	Bertrand & Mullainathan (2004)
9	Difference-in-Differences and Event Studies	Treatment and comparison groups; before-and-after comparisons; parallel trends; policy evaluation; event-study logic.	Card & Krueger (1994)
10	Instrumental Variables	Endogeneity; instruments; relevance and exclusion; natural experiments; interpretation and limitations.	Angrist (1990)
11	Regression Discontinuity and Modern Applied Research	Threshold-based designs; continuity assumptions; graphical evidence.	Black (1999)
12	Writing, Presenting, and Evaluating Research	replication; research ethics; presentation and course synthesis.	Autor, Dorn & Hanson (2013), selected sections

Partial Reading List

1. Angrist, Joshua D. (1990). "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records." *American Economic Review* 80(3): 313-336.
2. Autor, David H., David Dorn, and Gordon H. Hanson (2013). "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *American Economic Review* 103(6): 2121-2168.
3. Bertrand, Marianne, and Sendhil Mullainathan (2004). "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *American Economic Review* 94(4): 991-1013.
4. Black, Sandra E. (1999). "Do Better Schools Matter? Parental Valuation of Elementary Education." *Quarterly Journal of Economics* 114(2): 577-599.
5. Card, David (1990). "The Impact of the Mariel Boatlift on the Miami Labor Market." *Industrial and Labor Relations Review* 43(2): 245-257.
6. Card, David, and Alan B. Krueger (1994). "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *American Economic Review* 84(4): 772-793.

7. Chetty, Raj, Nathaniel Hendren, and Lawrence F. Katz (2016). "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment." *American Economic Review* 106(4): 855-902.

Group Research Report

The final group report (max 3000 words not including tables, figures and references) is worth 10% of the course grade. Detailed instructions will be provided during the term. The report should normally contain: (1) a clear research question and motivation; (2) a concise review of the most relevant literature; (3) an explanation of the economic mechanism or hypotheses; (4) a description of the proposed or actual data; (5) an empirical specification and identification strategy; (6) discussion of threats to identification and limitations; and, where feasible, (7) descriptive statistics, figures, regression results, or other preliminary evidence.

Generative Artificial Intelligence (GenAI)

GenAI tools may be used as study aids in this course. Permitted private-study uses include asking for explanations of economic or econometric concepts, generating additional practice questions, checking algebra or statistical reasoning, and obtaining feedback on a student's own practice answers. Students should verify GenAI output against lecture material and assigned readings because GenAI systems can produce incorrect, incomplete, or fabricated answers and references.

GenAI is not permitted during the midterm examination or the final examination. For the group research project, GenAI may be used only in ways specifically permitted by the instructor. Any permitted use in submitted project work must be disclosed, including the tool used and a brief description of how it contributed. Students remain responsible for the accuracy of all citations, data descriptions, analysis, and written material submitted under their names.

As our understanding of GenAI and academic integrity continues to evolve, students should discuss any use not clearly covered by this policy with the instructor. Carleton's AI Framework and MacOdrum Library resources provide additional guidance.

Academic Accommodations

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes, including information about the Academic Consideration Policy for Students in Medical and Other Extenuating Circumstances, are outlined on the Academic Accommodations website (students.carleton.ca/course-outline).

Academic Integrity

Academic integrity is fundamental to the University. Students are responsible for reading and understanding Carleton University's Academic Integrity Policy and for ensuring that all work submitted for evaluation complies with that policy. Unauthorized assistance, plagiarism, fabrication of data or references, and other forms of academic misconduct are serious offences.

Academic Standing

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Deferred Final Examination

Students unable to write the final examination may be eligible to write a deferred final examination. Applications for a deferred final examination must be made through the Registrar's Office in accordance with University procedures and deadlines.