



**University
of Victoria**

Economics 545
Econometric analysis

Lecture section (A01)

Winter Session: Fall 2026
CRN (Lecture): 11160
Unit Value: 1.5
Schedule Type: Lecture
Delivery Mode: Face-to-face
Meeting Time: MR 10:00–11:20 AM
Building & Room: BEC 363
Start/End Dates: Sep 9 – Dec 7, 2026

Lab section (B01)

CRN: 11161
Unit Value: 0
Schedule Type: Lab
Delivery Mode: Face-to-face
Meeting Time: Wed 9:30–10:20 AM
Location: Clearihue A105
Dates: Sep 9 – Dec 7, 2026 (see note)

Note there will be no lab in the first week of classes. Labs begin in Week 2.

Instructors.

Instructor Chris Auld
Office BEC 348
Email auld@uvic.ca
Phone 250.721.8537 (email is strongly preferred)
Office Hours Wednesdays, 2:30–4:00 (see note)
Contact Email is primary; responses within two business days.

Course TA Mohammadmahdi (Jalal) Masoumijalal
mmasoumijalal@uvic.ca

Office hours: to be scheduled as needed.

Note on Auld's office hours: generally I will be available for face to face meetings. Technical questions are much easier to answer face to face than they are on Zoom. However, Zoom is possible by request.

Teaching and assessment modality.

This course is delivered face-to-face and all exams are held in person. Lectures will be held in person unless illness or weather precludes, in which case no more than one-third of sessions will be moved online. There are no required devices for participation.

Course content.

Calendar Description: *Analysis of econometric methods for applied microeconomic research within the linear model, including specification, estimation, and hypothesis testing; introductory instrumental variables.*

See the learning outcomes and the course schedule for more detail on content.

Course prerequisites and corequisites.

Two undergraduate courses in econometrics, a course in linear algebra, and a course in calculus (or equivalent preparation). Please chat with me at the start of term if you are concerned about your technical background.

Textbook and materials.

Main course text

- **Davidson, R., and J. G. MacKinnon (2021).** *Econometric Theory and Methods (manuscript)*.
Free. Roughly, we cover selected parts of the first eight chapters.

Recommended additional readings.

- **Davidson, R., and J. G. MacKinnon (1993).** *Estimation and Inference in Econometrics*.
Free. More mathematically advanced; uses the same notation and approach as the main text.
- **Hansen, B. E. (2022).** *Econometrics*.
Free. More advanced than the main text but particularly good on linear algebra and probability theory.
- **Wooldridge, J. M. (2019).** *Econometric Analysis of Cross Section and Panel Data* (MIT Press); *Introductory Econometrics: A Modern Approach* (Cengage).
Good coverage of many microeconomic topics at about the same level as the main text.
- **Greene, W. H. (2018).** *Econometric Analysis* (8th ed., Pearson).
Great wide-ranging reference, not so great to learn from.

- **Cunningham, S. (2021).** *Causal Inference: The Mixtape*.
Accessible discussion of issues in causal inference.
- **Huntington-Klein, N. (2022).** *The Effect: An Introduction to Research Design and Causality*.
Another accessible take on causal modeling.
- **Cameron, A. Colin and Pravin K. Trivedi.** *Microeconometrics Using Stata*, Second Edition (2022), Volumes I and II; Stata Press. See [stata-press.com/books/microeconometrics-stata](https://www.stata.com/books/microeconometrics-stata) for details and resources (ISBN-13 978-1-59718-362-8). Succinct theoretical explanations combined with Stata code to implement.
- **Hanck, C., M. Arnold, A. Gerber, and M. Schmelzer (2024).** *Introduction to Econometrics with R*.
Similar to the previous entry, but with R.

Datasets, slides, and example code will be posted on Brightspace. You are also strongly advised to have available an introductory undergraduate level textbook (e.g., “baby” Wooldridge) available for reference.

Software.

Assignments may be completed using any software capable of the statistical analysis required for the course, but **Stata**, **R**, or **Python** are particularly recommended. Classroom demonstrations use **Stata**. We will discuss the pros and cons of these packages in class.

Brightspace.

Announcements, archived exams, example code, lecture slides and any other course content to be made available will be posted on Brightspace. Students are responsible for checking Brightspace regularly for updates.

Learning outcomes.

By the end of the course, students will be able to:

- Apply probability theory and linear algebra to derive and prove fundamental results in econometrics.
- Derive and explain the numerical and statistical properties of the OLS estimator, including reasoning using the geometry of least squares to explain estimation, residuals, predicted values, and model fit.
- Frame empirical questions in terms of *identification* in the linear models and recognize key issues such as omitted variables and simultaneity.

- Specify, use appropriate statistical software to implement, and interpret appropriate linear models and associated statistical results such as p-values and confidence intervals.
- Assess when a *causal* interpretation of regression results is warranted and when such an interpretation would lead instead to misleading conclusions.
- Explain the basic ideas in instrumental variables (IV) methods and both the opportunities and perils of such approaches.
- (Time permitting) Explain and implement basic difference-in-differences models and evaluate their strengths and weaknesses.

Course structure, assessments, and grading

Learning occurs through in-person lectures and independent reading. Students must request permission from the instructor before recording lectures. Learning components include lectures, assignments, tutorials, in-class discussion, and posted practice materials.

Use of AI.

You may use generative AI to aid you while working on the assignments, including for help with coding, debugging, and checking your reasoning. However, you are responsible for understanding all of the work you submit, and you are strongly encouraged to attempt both theoretical questions and coding exercises yourself before turning to AI for help.

AI may not be used during examinations. You are encouraged to use AI as a tutor during the course, but its output should be treated critically, as current large language models can make confident but substantive errors, including errors in mathematical derivations, statistical reasoning, and coding.

Grading scheme and policies.

- Assignments: 15%
- Midterm examinations (two, held during lab time): 35% total (17.5% each)
- Final examination (cumulative): 50%

Note that the instructor may adjust the distribution of grades to more accurately reflect achievement of learning outcomes. All exams are in person. A passing grade on the final exam must be obtained to pass the course. For all exams, basic calculators are permitted but no other materials are allowed.

Assignments

Approximately four assignments will be given, covering both theory and computing exercises. The goal of the assignments is to provide practice with theoretical issues and calculations which you are likely to encounter during the exams, and to give you hands-on experience implementing computational skills such as simulation and coding for data analysis.

Mandatory / essential course components.

To complete the course, you must write the final exam and you must complete at least one midterm. You must attempt both midterms unless you have a University-recognized ground for academic concession, such as illness, to miss one. If you miss a midterm, the weight of that midterm will be re-allocated to the other midterm. Documentation may be required under University policy. Essential components are deferrable under University policy.

Dates of assessments and due dates.

Midterms: dates are tentative and will be confirmed by the end of the second week of classes.

Midterm schedule		
Date	Time	Location
Wed Oct 14, 2026	9:00–10:20 AM	TBD
Wed Nov 18, 2026	9:00–10:20 AM	TBD

Note carefully that the midterms start at 9:00am while the regular lab sessions start at 9:30am, in the interest of relaxing time pressure during the exams. Please immediately bring any intractable scheduling conflicts to my attention.

Final exam: In person, scheduled by the Registrar. Alphanumeric calculators are permitted but no other materials are allowed. *Please do not make travel plans until the official exam schedule is released. Travel conflicts are not grounds for academic concession.*

Grading scale.

The standard UVic grading scale applies:

Grade	Percentage Range
A+	90–100%
A	85–89%
A-	80–84%
B+	77–79%
B	73–76%
B-	70–72%
C+	65–69%
C	60–64%
D	50–59%
F or N	0–49%

Tentative schedule.

Weeks	Topic
1, 2	1. Course overview; linear algebra and probability review
3, 4	2. Numerical properties of the OLS estimator
5–7	3. Statistical properties of the OLS estimator
8, 9	4. Inference in the linear model.
10, 11	5. Instrumental variables
12	6. Panel data and difference in differences

Note that we may not get to the final topic, and we will spend more time on given topics if warranted by classroom discussion and feedback.

Academic integrity.

Academic integrity is fundamental to all scholarly work. At the University of Victoria (UVic), students are expected to comply with the university's academic regulations and must not engage in acts of dishonesty, falsification, misrepresentation, or deception in any academic work. Violations of [the University's academic integrity policy](#) may result in academic or disciplinary consequences.

University policies and statements.

The University of Victoria requires that the following information be included in all course outlines. Students are responsible for familiarizing themselves with these policies:

- University Calendar - Section "[Information for all students](#)"
- [Creating a respectful, inclusive and productive learning environment](#)
- [Academic Integrity](#)
- [Academic Concession Regulations, Academic Concession and Accommodation](#), Academic Accommodation – [Policy AC1205](#)
- [Accommodation of Religious Observance](#)
- [Student Conduct](#)
- [Accessibility](#)
- [Diversity / EDI](#)
- [Equity statement](#)
- [Sexualized Violence Prevention and Response](#)
- [Discrimination and Harassment Policy](#)

Resources for students.

- [Student wellness](#)
- [Centre for Accessible Learning](#)
- [UVic Learn](#). UVic Learn is the primary learning resource for students that offers many learning workshops and resources to help students with academics and learning strategies.
- [Library](#) resources
- Academic Skills Centre ([ASC](#))
- Learning Assistance Program ([LAP](#))
- [Academic Advising](#)
- Economics Undergraduate Advising: ecadvice@uvic.ca
- [Student Awards and Financial Aid](#)
- [International Student Advising](#)
- Indigenous student services ([ISS](#))
- [Student groups and resources](#) including UVic Ombudsperson

Territorial acknowledgement.

We acknowledge and respect the Songhees and Esquimalt Peoples on whose territory the university stands, and the Songhees, Esquimalt and Wsanec Peoples whose historical relationships with the land continue to this day.