**University of Victoria | Economics**

**ECON 345 Applied Econometrics**

**Spring Session:** January- April 2026

**UVic Land Acknowledgement**

We acknowledge and respect the ləkʷəŋən peoples on whose traditional territory the university stands and the Songhees, Esquimalt and W̱SÁNEĆ peoples whose historical relationships with the land continue to this day.

**Instructor Information:**
**Name:** Dr. Muthoni Nganga
**Office**: BEC 340
**E-Mail**: muthoni@uvic.ca
**Office Hours**: Thursday 3-4pm. All online. You may email to book an appointment for in-person office hours, or to book an online appointment outside office hours.
Office hours zoom link:
https://uvic.zoom.us/j/86204092261?pwd=3fDGzYQ8W5QFXthap2yWqgHUXeIlDP.1
Meeting ID: 862 0409 2261
Password: 679589

**Lectures:** Mon, Thur 10- 11.20am
**Labs:** see online registration


**E-mail correspondence**
Always include the course code and course name in the subject line of your email. Without this information, I will not be able to respond. Emails should be limited to critical matters only such as booking appointments outside office hours. It is not advisable to ask class questions that require long answers or a discussion on email. They are both time consuming and often unclear especially when the student requires further clarification. You are encouraged to ask questions during class or office hours. I will not respond to emails that require long responses or those that can be answered using the course syllabus. Please note that I will not respond to emails asking me to summarize what you missed in class or to tell you whether the missed content was important- **All classes are important.** It is your responsibility to attend class and to catch up on any material you may have missed. Please connect with your classmates for notes and updates if you are absent. Students are advised to use their official Uvic email address for all course-related correspondence. Messages sent from non-Uvic email accounts may be filtered as spam and therefore may not be received. Please use your institutional email address when contacting the instructor or the teaching assistant.

Kindly use a professional tone in your emails.

I check and respond to emails on Monday- Friday (apart from holidays) between 2-4pm

TA: TBD

## Course Content

This course provides a general introduction to the practice of econometric analysis. We will focus largely on multiple regression techniques in cross-sectional data analysis considering common issues and problems that arise in applied empirical research. We will also briefly introduce time series analysis. While motivated by intuition and applications, the presentation of estimators and tests will be primarily mathematical in nature. Students will learn *R* - a freely available and widely used statistical programming language to analyse and plot data, draw inference, and compare alternative modelling approaches. The course closely follows the textbook "*Introductory Econometrics: A Modern Approach*" by J. Wooldridge.

## Learning Outcomes

In this course you will gain an understanding of econometric methods and their applications. You will learn how to analyse data, interpret existing analyses, the basics of econometric theory that underpins econometric analysis, as well as independent research skills starting from formulating a research question to concise presentation of results. The course leads to highly transferrable modelling and programming skills through lab-based instruction using the statistical programming language *R* (widely used in academic research, government roles, and the private sector).

## Delivery

This course will be offered in person following UVic's guidelines. Students may be required to wear masks during lectures, labs, office hours, and exams (subject to public health guidelines).

## Attendance Policy

Attendance may be recorded during certain class sessions; while it will not contribute directly to the final course grade, class attendance is strongly encouraged. Research shows that students who attend class regularly tend to perform better academically, as engagement in discussions and activities enhances understanding and retention of course material.

## Course Content

The course closely follows the textbook. The tentative course structure and schedule is shown below. This is subject to change – check Brightspace for up-to-date topics and deadlines.

| Topic | Wooldridge Readings |
|---|---|
| Introduction to Econometrics | Chapter 1 |
| Univariate regression | Chapter 2 |
| Multivariate regression | Chapter 3 |
| Inference | Chapter 4 |
| Asymptotics | Chapter 5 |
| Further Issues: Functional Form & Model Specification | Chapter 6 |
| Dummy Variables | Chapter 7 |
| Introduction to Time Series | Chapter 10 + Further Reading |
| Heteroskedasticity | Chapter 8 |
| Causality & Instrumental Variables **(time permitting)** | Chapter 15 + Further Reading |

## Textbooks

**Textbook (required)**: The required textbook for this course is "*Introductory Econometrics: A Modern Approach*," (Eighth Edition) by J. Wooldridge. The book will be sold at the bookstore as a loose-leaf text (which saves you money), but you are welcome to buy it in bound form or find a used copy. Other editions of the textbook (e.g., the 7th edition) may be acceptable for this course. However, it is the student's responsibility to ensure that the edition they are using corresponds to the structure and content of the 8th edition, which is the official version for this class. All problem sets and assignments are based on the 8th edition, and no grading adjustments will be made to accommodate differences in other editions.

**Lab Textbook (optional)**: Labs will be based on the statistical programming language R. The optional textbook "Using R for Introductory Econometrics" (Heiss, 2016) provides code to complete the exercises in Wooldridge and is freely available online at: http://www.urfie.net/

**Assessment**

The course is assessed through two (or three) term exams, an independent research project (+ proposal), lab exercises, and problem sets. Lab exercises and problem sets will be assessed based on completion only (not on correctness). **Note that,** I reserve the right to examine students in-person concerning their understanding of their submitted work and adjust their mark accordingly.

**Assessments and Grade Structure**

| Item | Notes and due date | **%** |
|---|---|---|
| Problem Sets | **Grading:** Based on completion. I.e, the problem sets completed *before the deadline*. Eg-if you submit half of all problem sets you will receive 5 points out of the possible 10 points. **Submission:** You may collaborate; but each student needs to submit their own assignment to Brightspace. Submit by **7pm** on the due date. **Submit** -upload PDF versions of the answers to Brightspace. If you scan/photograph handwritten answers, make sure they are legible, converted to PDF format and readable. Problem sets submitted late will be considered unsubmitted- grade 0. Please **do not** email the instructor/ TA if you miss a problem set or plan to submit one late. To allow for unforeseen circumstances, the two lowest problem set scores will be dropped. This means there is no penalty for missing up to two problem sets. Ensure that your grade is accurately recorded a week after submission, and the aggregate grade at the end of the term- before final exams begin. If there are any issues, they must be emailed to the TAs immediately. Issues reported late will be ignored. | **10** |
| Lab Participation (completion only) | Designed to teach you econometric modelling in practise using the statistical programming language R. Answers to the short weekly lab problems should be submitted via Brightspace (or handed in-person during labs)- or by Friday of the relevant week. **Grading-** Based on completion only. No extensions will be granted on lab exercises. Lab assignments submitted late will be considered unsubmitted- grade 0. Please **do not** email if you miss any - 2 will be dropped- hence no penalty for missing 2 Ensure that your grade is accurately recorded a week after submission and the aggregate at the end of the term- before final exams begin. If there are any issues, they must be emailed to the TAs immediately. Issues reported late will be ignored. | **5** |
| Independent Research Project + Proposal | See **note A2** below Proposal: due date- January 15, 7pm late due date without penalty - January 17, 7pm Final Project: due Mar 5, 7pm: late due date without penalty – Mar 10, 7pm Please do not send an email to the instructor/ TA about your submission date | **20** |
| Midterm Exam | Midterm 1- **Monday, February 9** Midterm 2- **Monday, March 9** Cumulative since the material presented in lectures and chapters builds on itself. See additional notes **A1 and A3 below** | **30** |
| Final-        Exam period | Cumulative since the material presented in lectures and chapters builds on itself. See additional notes **A1 and A3 below** | **35** |

*Note A1:*
Items permitted during exams are: a non-programmable calculator without storage capacity (no Ti 89 etc.), pen and pencil, a water bottle, and your ID card. Any additional material will not be allowed on your desk during examinations.

**Midterms:** Only one out of the two midterm exams will count toward your final grade; the lower score (of the two) will be dropped automatically. If you miss one midterm, that will be the one excluded- no penalty and no need to email the instructor/ TA. However, if you miss both midterms, you will receive a zero grade for the midterm. Please note that no make-up midterm exams will be offered - this policy already accounts for missed midterm situations.

The midterm exam questions will be reviewed and discussed in class after the grades are released. No additional answer key will be provided. It is therefore your responsibility to attend class. Individual sessions to review the exam questions will not be offered.

While it is acceptable to request a regrade if you identify a grading error during the review, please note that no additional credit or make-up exams, or extra questions will be given to individual students for the purpose of raising a grade. It is considered unethical to ask for a grade bump.

**Final exam:** Consideration for missed final exams will be given only on the basis of the University's policies at the time, accident or family affliction, and for no other reasons. In the event of a missed examination, students are advised to follow the procedures outlined in the University Calendar: formally apply to request a deferral  to write a deferred exam in the upcoming term- see University Examination Policies. Do not email me that you are unable to take the Final Exam.

According to university policy, students are advised to make travel plans after the exam schedule becomes available, and conflicts with travel plans are not considered a valid reason for missing the Final Exam.

Note: The weight of any of the assessment items cannot be shifted to any other assessment item.

**Important:** To ensure comprehensive understanding of the material, you must pass at least one of the term exams (midterm or final) to pass the course. If you do not pass at least one term exam, then your final grade will at most be 49%.

Note: All Material covered in lectures, labs, problem sets, and relevant textbook chapters, may appear on the exam, thus attendance in lectures and labs is highly encouraged. Attendance highly correlates with final course grades.

Exam questions will follow the style and format of those found in the problem sets and those discussed during class sessions. If you miss a class, it is up to you to follow up with your classmates for updates on what you missed. You will not be required to use a computer for any exam questions. I will not respond to emails asking for additional information on exams coverage.

*Note A2:*
*Independent Research Project (20%)*: The independent research project is designed to give you real-world experience of conducting econometric research. For this project, work in pairs. You may choose any topic and dataset to estimate regression models to answer a research question that interests you. Earlier in the term, you will first submit a half page research proposal (marked only on completeness, not correctness). Then, for the final research project, present your results in the form of a written academic essay (no bullet points, screenshots, or copy-pasted tables/code) presenting your hypothesis, data, methods, and results, with a maximum length of 3 pages + references**- at least three academic references.** You must also submit your data and R-code (as separate files)- that completely replicates your results reported in your final project. If the R-code or data is not submitted, 20% of your grade will be deducted from the final project mark.

The research project constitutes independent work - you must reference any literature you cite and any data and methods you use. You may not use AI to write the independent research project. The consequences of

plagiarism range from a failing grade for an assignment or course to disciplinary probation or even expulsion from the university. Review "What is Plagiarism" for the definition of plagiarism.

Both the proposal and the final project must be submitted. No extensions will be granted on the project or proposal- see early and late submission dates in the assessment table. If the project is submitted late (after late submission date), 10% will be deducted per day past the due date. If the proposal is submitted late (or not submitted at all), 5% from the final project mark will be deducted per day, up to a maximum of 20% of the project mark. If you do not submit the final research project, you will receive an "N" for the course.

*Note A3:*
**Essential / Mandatory Course Requirements**: The independent research project, and the final exam must be completed to not receive an "N" on this course. You must pass at least one of the term exams (midterm or final with a grade of at least 50%) to pass the course. If your overall course average is above 50% but all exams are below 50%, then your final grade will be 49%.

**Grading Scale:**

| Passing Grades | Percentage | Description |
|---|---|---|
| A+ | 90-100 | Exceptional, outstanding performance. Normally achieved by |
| A | 85-89 | a minority of students. These grades indicate a student who is |
| A- | 80-84 | self-initiating, exceeds expectations and has an insightful grasp of the subject matter. |
| B+ | 77-79 | Very good, good and solid performance. Normally achieved |
| B | 73-76 | by the largest number of students. These grades indicate a |
| B- | 70-72 | good grasp of the subject matter or excellent grasp in one or more areas balanced with satisfactory grasp in other areas. |
| C+ | 65-69 | Satisfactory, or minimally satisfactory. These grades indicate |
| C | 60-64 | a satisfactory performance and knowledge of the subject matter. |
| D | 50-59 | Marginal performance. A student receiving this grade demonstrated a superficial grasp of the subject matter. |
| **Failing Grades** | | |
| F | 0-49 | Unsatisfactory performance. Wrote examinations and completed course requirements. |
| N | 0-49 | Did not complete course requirements by the end of term or session. |

**Course Policies**
This course adheres to the Department Course Policies of the Department of Economics that deal with the following issues:
- Academic concessions
- Academic integrity (plagiarism and cheating)
- Attendance
- Grading
- Inclusivity and diversity
- Late adds
- Late assignments
- Repeating courses
- Review of an assigned grade
- Students with a disability
- Term assignments and debarment from examinations

- Travel plans
- Waitlists

The following policies are explicitly included because of their importance.

**Late Assignments and Missed Examinations**
See "assessment and grade structure" table and reference notes. – For all course assessments.

Consideration for missed final examinations or late assignments will be given only on the basis of with the University's policies at the time, accident or family affliction, and for no other reasons. In the event of a missed examination, students are advised to follow the procedures outlined in the University Calendar: University Examination Policies

If a student misses a final exam due to one of the above reasons, there may be a makeup exam offered during the Economics department's makeup exam sessions. More than one makeup exam is not regularly given, and students should follow University's guidelines on formal deferrals.

Students are advised not to make work or travel plans during lecture and lab hours to be able to attend all classes and examinations. There will be no special accommodation (and no makeup exams) if travel plans conflict with examinations held during class hours or the examination period. There will be no extensions for problem sets, lab exercises, the research project. A lab exercise, or problem set that is submitted late will count as not submitted- see assessment table for details.

**Brightspace**
Brightspace is used extensively for the course. All students are expected to be fully functional with the system. The lecture material, problem sets, and labs will be posted in Brightspace. Please note that the lecture notes online are only outlines of the actual lectures, and additional material may be covered during the lectures. All announcements will be posted in Brightspace. Students are advised to check it frequently.

**Waitlist Policies**
- Instructors have no discretion to admit waitlisted students or raise the cap on the course.
- Students on the waitlist should discuss with the instructor how to ensure they are not behind with coursework in the event they are admitted.
- Registered students who do not show up in the first seven calendar days from the start of the course may be dropped from the course.
- Registered students who decide not to take the course are responsible for dropping the course, and are urged to do so promptly out of courtesy toward waitlisted students.
- Waitlist offers cease after the last date for adding courses irrespective of published waitlists.

**Academic Integrity**
Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. Students are expected to observe the same standards of scholarly integrity as their academic and professional counterparts.  Review  "What is Plagiarism" for the definition of plagiarism. Note: Submitted work may be checked using plagiarism detection software as well as selected for plagiarism audits. This applies to all exams and submitted work, including problem sets, the research project, and forecasting competition entry.

Students must abide by UVic academic regulations and observe standards of 'scholarly integrity,' (no plagiarism or cheating). This applies to all assignments and exams (take-home or otherwise). Any online exams must be taken individually and not with a friend, classmate, or group.All alleged violations of academic integrity will be investigated and a student who is found to have engaged in unethical academic

behaviour, including the practices described in the [Policy on Academic Integrity](#) in the University Calendar, is subject to penalty by the University.

Artificial Intelligence (AI): The use of AI (e.g. large language models) for problem sets, labs, research project (and proposal), forecasting competition, or exams is not permitted in this course. Should you violate this rule, you will have violated UVic's academic integrity policy and a complaint against you under this policy will be filed accordingly.

**Student Code of Conduct**
The Humanities, Science, and Social Sciences Faculties have adopted this [Student code of conduct](#). Please, review.

**Appeals**
Depending on the nature of your concern, the order in which you should normally try to resolve the matter is:

1. Me, the course instructor
2. the Associate Chair: [econassoc@uvic.ca](mailto:econassoc@uvic.ca)
3. the Associate Dean of Academic Advising
4. the Senate.

If you're seeking a formal review of an assigned grade, you should also consult the regulations in the academic calendar regarding [review of an assigned grade](#).

**University Policy on Human Rights, Equity and Fairness**
The University is committed to promoting, providing and protecting a positive, supportive and safe learning and working environment for all its members. See [General University Policies](#)

**Accessibility & Health Resources**
Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, you are free to approach me; however, you must register with the [Centre for Accessible Learning](#) (CAL) for formal arrangements to be made. The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

[Health Services](#) - University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.

[Counselling Services](#) - Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.

[Elders' Voices](#) - The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.

**Other Resources for students**

a. [Student wellness](#)
b. [Centre for Accessible Learning](#)

c. UVic Learn Anywhere. UVic Learn Anywhere is the primary learning resource for students that offers many learning workshops and resources to help students with academics and learning strategies.
d. Library resources
e. Centre for Academic Communication (CAC)
f. Learning Strategies Program (LSP)
g. Academic Advising
h. Economics Undergraduate Advising: ecadvice@uvic.ca
i. Student Awards and Financial Aid
j. International Student Advising
k. Indigenous student services (ISS)
l. Student groups and resources including UVic Ombudsperson

## Course Experience Survey (CES)

Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future.

When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to the CES log-in. You will use your UVic NetLink ID to access the survey, which can be completed on your laptop, tablet or mobile device. I will remind you nearer the time, but please be thinking about this important activity, especially the following three questions, during the course.

- What strengths did your **instructor** demonstrate that helped you learn in this course?
- Please provide specific ideas as to how the **instructor** could have helped you learn more effectively.
- Please provide specific suggestions as to how this **course** could be improved.

## Repeating Courses

According to the University of Victoria Calendar http://web.uvic.ca/calendar

*"A student may not attempt a course a third time without the prior approval of the Dean of the Faculty and the Chair of the Department in which the course is offered unless the calendar course entry states that the course may be repeated for additional credit. A student who has not received this approval may be deregistered from the course at any point and may be asked to withdraw from his or her declared or intended program."*

In order to request permission to attempt this course for the third time, you must follow the instructions provided under the link **Repeating Courses** at

http://www.uvic.ca/socialsciences/economics/undergraduate/home/course%20policies/index.php

Failure to obtain permission will result in deregistration from the course.

## Electronic devices

You should install econometric software on your personal computers. R (https://cran.r-project.org/) and RStudio (https://www.rstudio.com/) are freely available online, the lab will cover use of the software. You are also encouraged to bring your own laptops with R and RStudio installed to the labs.