



# Faculty of Science Course Syllabus

## Department of Economics

### Econometrics I, ECON 3338

### Winter 2026

*Dalhousie University operates in the unceded territories of the Mi'kmaw, Wolastoqey, and Peskotomuhkati Peoples. These sovereign nations hold inherent rights as the original peoples of these lands, and we each carry collective obligations under the Peace and Friendship Treaties. Section 35 of the Constitution Act, 1982, recognizes and affirms Aboriginal and Treaty rights in Canada.*

*We recognize that African Nova Scotians are a distinct people whose histories, legacies, and contributions have enriched the part of Mi'kma'ki known as Nova Scotia for over 400 years.*

#### **Instructor**

Nicholas Lawson, [nicholas.lawson@dal.ca](mailto:nicholas.lawson@dal.ca)

Office: 6220 University Avenue, Office C14

Office Hours: Tuesdays, 10:30 am-11:45 am (or by appointment)

#### **Teaching Assistant**

Henry Nwoga, [henry.nwoga@dal.ca](mailto:henry.nwoga@dal.ca)

Office Hours: to be determined

#### **Timetable**

Lectures: Tuesdays & Thursdays, 4:05 pm-5:25 pm, Mona Campbell 2107

Tutorials: Mondays, 8:35 am-9:55 am, Dunn 301A

#### **Communication**

When I need to communicate information to you all, I will send an email to the class through Brightspace. You are responsible for checking your email account so as not to miss important messages. To contact me, send an email to [nicholas.lawson@dal.ca](mailto:nicholas.lawson@dal.ca), with "ECON 3338" in the subject, and I will respond within 24 hours (except weekends). I also make in-class announcements at the start of each class. I will be available to meet with students in my office during my office hours, but you can also contact me by email at any time, and I will also be available for meetings at other times by appointment, in my office or on Teams.

## **Course Description**

The theory of some quantitative methods commonly used by economists is discussed in the context of the classical linear model. Estimation problems caused by violations of the assumptions of the classical model are studied including heteroscedasticity and autocorrelation.

## **Course Prerequisites**

MATH 1000.03 (or equivalent) and STAT 2060.03/MATH 2060.03 with minimum grades of C.

## **Course Objectives**

Students will acquire a good understanding of the fundamental principles of econometrics, including knowledge of various econometric techniques designed to ensure reliable quantitative analysis of economic questions and data. They will gain experience working with real-world data, building econometric models, and performing hypothesis testing. The objectives of the course are that the participants can:

- formulate the simple and multiple linear regression models and their underlying assumptions
- apply the procedure of Ordinary Least Squares
- estimate and interpret the parameters of linear regression models
- describe the statistical properties of the estimated parameters
- test linear restrictions imposed on the parameters of linear regression models
- understand the consequences of multicollinearity, omitted variables, functional form misspecification, and heteroskedasticity in multiple regression models
- evaluate the adequacy of the estimated regression models by performing specification tests
- estimate models with binary dependent variables.

## **Course Organization**

The course combines theoretical and applied elements: in my lectures, I will concentrate on the foundations of econometric theory, using my own slides, with some exercises as examples. In the tutorials, the TA will present algebraic and numerical exercises, as well as empirical exercises using Stata where the emphasis will be on applying the methods from the course on real data. My slides and the tutorial files are available on Brightspace, and all lectures and tutorials will be in-person.

## Assessment

<i>Component</i>	<i>Due Date</i>	<i>Weight (% of final grade)</i>
Midterm Exam #1	January 29	15%
Assignment #1	February 26	10%
Midterm Exam #2	March 12	15%
Assignment #2	March 26	10%
Final Term Project	Proposal: March 5	2%
	Preliminary Draft: April 4	2%
	Final Paper: April 9	16%
Final Exam	Exam Period (April 11-27)	30%

The assignments will be available on Brightspace, and will include a variety of computer exercises; you can work on your own or in groups of 2 or 3. You may talk with members of other groups about the questions, but copying from another group, or submitting work that is not your own, is not permitted. Each assignment must be submitted before 5 pm on the due date; you can submit a paper copy in person or a PDF copy on Brightspace. Late assignments will be marked down by 1% per hour.

The final term project is an individual project in which each student will use ordinary least squares to analyze cross-sectional economic data. Each student will be responsible for choosing a research question, formulating a regression model, finding relevant data and papers, performing the regression analysis, and discussing the results. A project proposal must be submitted by March 5, the first draft is due on April 4 for a format check, and the final version is due on April 9 (all deadlines are at 5 pm on the respective days). Detailed instructions will be provided in a document that will be posted on Brightspace. Late projects will be marked down by 1% per hour.

In exceptional circumstances, if a student cannot submit an assignment or term project by the due date, the student must contact me before the deadline to discuss alternative arrangements.

Exams are “closed-book” and will take place in person. If a student is unable to write an exam, they must contact me by email prior to the date and time of the exam, and submit a completed Student Declaration of Absence by email (no medical note is required). If a student misses a midterm exam, its weight will be added to the final exam. If a student misses the final exam, they will have the opportunity to write a make-up exam.

All students are encouraged to read the information about Dalhousie’s policy regarding academic integrity at <https://www.dal.ca/about/leadership-governance/academic-integrity.html>. If you haven’t already done so, you are very strongly encouraged to complete the

Writing Centre's Academic Integrity Module; see <https://dalu.sharepoint.com/sites/student-affairs/SitePages/Academic-Integrity.aspx> for more information.

I will provide you with your grades throughout the semester using the Brightspace Gradebook tool.

### Conversion of Numerical Grades to Final Letter Grades (Dalhousie Grading Scale)

Letter Grade	Range	Letter Grade	Range
A+	90-100	C+	65-69
A	85-89	C	60-64
A-	80-84	C-	55-59
B+	77-79	D	50-54
B	73-76	F	0-49
B-	70-72		

Note: The ranges specified in the table refer to the two digits before the decimal; therefore, a grade of 76.99, for example, would be converted to a B, not a B+.

### Textbook

The required textbook for this course is:

- James Stock & Mark Watson (2019), *Introduction to Econometrics*, 4th edition, Pearson Education.

The book is available at the Dal Bookstore in a digital version (a 180-day e-book); see the Bookstore website at [https://bookstore.dal.ca/CourseSearch/?course\[\]=SUB,202620,ECON,ECON3338,01](https://bookstore.dal.ca/CourseSearch/?course[]=SUB,202620,ECON,ECON3338,01) for more information. There is also a page of student resources available at [https://www.princeton.edu/~mwatson/Stock-Watson\\_4E/Stock-Watson-Resources-4e.html](https://www.princeton.edu/~mwatson/Stock-Watson_4E/Stock-Watson-Resources-4e.html).

Older versions of Stock & Watson, such as the 3rd edition from 2011, are also fine; they do not contain the new chapter 14 on big data and machine learning, but those subjects are not relevant for our class. However, some of the exercises have changed between the 3rd and 4th editions; I have scanned the exercises from the 4th edition, and they will be available on Brightspace.

The Stock & Watson textbook is one of the most popular for undergraduate econometrics, but it is not the only one. In particular, Jeffrey Wooldridge's "Introductory Economics: A Modern Approach" is also very popular, and has been used in the past for this class; and there are several other good undergraduate textbooks (Greene, Gujarati, Verbeek, Dougherty, Hall & Griffiths & Lim, etc). If you already have one of these textbooks, you can use it; however, you should be aware of some differences with respect to Stock & Watson. Most textbooks (including Wooldridge) start from the assumptions of normal and homoskedastic errors and non-

stochastic regressors, and later analyze how the results change if these assumptions are invalid. Stock & Watson start from the perspective that these assumptions are (almost) never valid in real life, and so it is better to start with the case where errors are not necessarily normal and homoskedastic and the regressors are stochastic. I will explain these differences further in the first class.

## Software

There is no restriction on which software you use for your assignments, as long as you can submit a log file or script showing the analysis that you performed. However, like many professors in economics, I prefer Stata, and part of the tutorial time will be devoted to an introduction to this software. A one-year Stata/SE Student license is available for free to all Dalhousie Students, and you can download Stata/SE 18 at <https://software.library.dal.ca/>.

## Course Schedule (Approximate)

Weeks	Subject & Chapters
1: January 8	Introduction, Probability, and Statistics
2: January 13 & 15	<ul style="list-style-type: none"> <li>• Introduction to Econometrics (Chapter 1)</li> <li>• Review of Probability (Chapter 2)</li> <li>• Review of Statistics (Chapter 3)</li> </ul>
3: January 20 & 22	
4: January 27	
January 29	<b>Midterm Exam #1</b>
5: February 3 & 5	Simple Linear Regression
6: February 10 & 12	<ul style="list-style-type: none"> <li>• Linear Regression with One Regressor (Chapter 4 &amp; 18)</li> <li>• Hypothesis Tests and Confidence Intervals (Chapter 5)</li> </ul>
7: Winter Study Break	
8: February 24 & 26	Multiple Linear Regression
9: March 3 & 5	<ul style="list-style-type: none"> <li>• Linear Regression with Multiple Regressors (Chapter 6)</li> <li>• Hypothesis Tests and Confidence Intervals (Chapter 7)</li> </ul>
10: March 10	
March 12	<b>Midterm Exam #2</b>
11: March 17 & 19	Non-Linear Regression Functions and Misspecification Testing
12: March 24 & 26	<ul style="list-style-type: none"> <li>• Non-Linear Regression Functions (Chapter 8)</li> <li>• Misspecification Testing (Chapter 9)</li> <li>• Binary Dependent Variables (Chapter 11)</li> </ul>
13: March 31 & April 2	
14: April 7	
Exam Period (April 11-27)	<b>Final Exam</b>

## Tutorial Schedule

<b>Weeks</b>	<b>Subjects</b>
3 : January 19	Probability & Introduction to Stata
4 : January 26	Statistics & Consistency
6 : February 9	Simple OLS #1
8 : February 23	Simple OLS #2
9 : March 2	Tests & Confidence Intervals
10 : March 9	Multiple OLS
11 : March 16	Tests & Confidence Intervals for Multiple OLS
12 : March 23	Non-Linear Regression Functions
13 : March 30	Misspecification Testing

# University Policies and Statements

## **Recognition of Mi'kmaq Territory**

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or [elders@dal.ca](mailto:elders@dal.ca). Additional information regarding Mi'kmaq and Indigenous Relations (including the Elders in Residence program, Land Acknowledgements, Understanding Our Roots, and much more) can be found at: <https://www.dal.ca/about/mission-vision-values/mikmaq-indigenous-relations.html>

## **Internationalization**

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about/mission-vision-values/global-relations.html>

## **Academic Integrity**

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

## **Accessibility**

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre ([https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro ([https://www.dal.ca/campus\\_life/ssc.html](https://www.dal.ca/campus_life/ssc.html)).

## **Conduct in the Classroom – Culture of Respect**

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While

expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

### **Diversity and Inclusion – Culture of Respect**

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <https://www.dal.ca/about/mission-vision-values/equity-diversity-inclusion-and-accessibility/about-office-equity-inclusion.html>

### **Student Code of Conduct**

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner – perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at:

<https://www.dal.ca/content/dam/www/about/leadership-and-governance/governing-bodies/code-student-conduct.pdf>

### **Fair Dealing Policy**

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: <https://www.dal.ca/content/dam/www/about/leadership-and-governance/university-policies/fair-dealing-policy.pdf>

### **Student Use of Course Materials**

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

# Student Resources and Support

## University Policies and Programs

- Important Dates in the Academic Year (including add/drop dates):  
[http://www.dal.ca/academics/important\\_dates.html](http://www.dal.ca/academics/important_dates.html)
- Classroom Recording Protocol:  
<https://www.dal.ca/content/dam/www/about/leadership-and-governance/university-policies/class-recording-protocol.pdf>
- Dalhousie Grading Practices Policies:  
<https://www.dal.ca/content/dam/www/about/leadership-and-governance/university-policies/grading-practices-policy.pdf>
- Grade Appeal Process: [https://www.dal.ca/campus\\_life/academic-support/grades-and-student-records/appealing-a-grade.html](https://www.dal.ca/campus_life/academic-support/grades-and-student-records/appealing-a-grade.html)
- Sexualized Violence Policy: <https://www.dal.ca/content/dam/www/about/leadership-and-governance/university-policies/sexualized-violence-policy.pdf>
- Scent-Free Program: <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>

## Learning and Support Resources

- General Academic Support – Advising (Halifax):  
[https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)
- General Academic Support – Advising (Truro):  
[https://www.dal.ca/campus\\_life/ssc.html](https://www.dal.ca/campus_life/ssc.html)
- Student Health & Wellness Centre: [https://www.dal.ca/campus\\_life/health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness.html)
- On Track (helps you transition into university, and supports you through your first year at Dalhousie and beyond): [https://www.dal.ca/campus\\_life/academic-support/On-track.html](https://www.dal.ca/campus_life/academic-support/On-track.html)
- Indigenous Student Centre:  
[https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)
- Mi'kmaq and Indigenous Relations:  
<https://www.dal.ca/about/mission-vision-values/mikmaq-indigenous-relations.html>
- Elders-in-Residence (The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit the office in the Indigenous Student Centre or contact the program at [elders@dal.ca](mailto:elders@dal.ca) or 902-494-6803:  
<https://www.dal.ca/about/mission-vision-values/mikmaq-indigenous-relations/elders-in-residence-and-traditional-knowledge-keepers.html>

- Black Student Advising Centre: [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)
- International Centre: [https://www.dal.ca/campus\\_life/international-centre.html](https://www.dal.ca/campus_life/international-centre.html)
- LGBTQ2SIA+ Collaborative: <https://www.dal.ca/about/mission-vision-values/equity-diversity-inclusion-and-accessibility/about-office-equity-inclusion/community-specific-groups/lgbtq2sia-collaborative.html>
- Dalhousie Libraries: <http://libraries.dal.ca/>
- Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>
- Dalhousie Student Advocacy Services: <https://www.dsu.ca/dsas?rq=student%20advocacy>
- Dalhousie Ombudsperson: [https://www.dal.ca/campus\\_life/safety-respect/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/ombudsperson.html)
- Human Rights and Equity Services: <https://www.dal.ca/about/mission-vision-values/equity-diversity-inclusion-and-accessibility/about-office-equity-inclusion/human-rights-and-equity-services.html>
- Writing Centre: [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)
- Study Skills/Tutoring: [http://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)
- Faculty of Science Advising Support: <https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html>

## Safety

- Biosafety: <http://www.dal.ca/dept/safety/programs-services/biosafety.html>
- Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>
- Radiation Safety: <http://www.dal.ca/dept/safety/programs-services/radiation-safety.html>
- Laser Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety/laser-safety.html>