



ECON 246 A01

Inferential Statistics

Summer Session: 2026 05 – Term 3, CRN 31295, 1.5 Unit Value,

Lecture TWF 12:30 - 2:20 pm MacLaurin D116

Labs MTH B01 10:30 am BEC 180 (CRN 31296)

UVic Land Acknowledgement

We acknowledge and respect the Lək'wəŋən (Songhees and X̱wsepsəm/Esquimalt) Peoples on whose territory the university stands, and the Lək'wəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

Instructor Name:

Instructor Name: Betty Johnson

Office: BEC 324

E-Mail: bettyj@uvic.ca

Office Hours: Zoom by appointment. **Office:** BEC 324

<https://uvic.zoom.us/j/85954196275?pwd=T0xCN2NQcTlzL0xRNW51QzluUHJjUT09>

TA Name: Forough Ghadamyari

Office: N/A

Email: ghadamyari@uvic.ca

Office Hours: TBA

Teaching and assessment modality statement

This course is face to face and all exams are held in person. Attendance is not mandatory but encouraged. There are no plans to hold any classes online. If illness occurs, I will post an online video in place of regular class.

Course Content

Introduction to estimation including linear regression. Sampling distributions of estimators, confidence intervals, hypothesis tests. Statistical programming and data visualization using R.

Economics 246 is the second building block of statistical analysis. Economics 245: Descriptive Statistics, introduced elementary descriptive statistics (i.e. mean, median, mode, variance, percentiles, etc.), techniques to analyze raw data (i.e. R, Excel, EViews applications) and basic probability theory (cumulative density functions, probability density functions, integration, etc.). **Economics 246** launches into statistical inference.

This course introduces the statistical tools necessary to legitimately analyze and interpret data, with emphasis on economic data and economic applications. Readily available personal computers have created an atmosphere where misuse and misinterpretation of data is commonplace. Hence, a proper knowledge and understanding of statistical concepts is crucial in order to avoid inferential mistakes and inaccurate forecasts. At the conclusion of this course, you will have achieved: 1) the skills necessary to critically assess statistical results and 2) the development of a certain level of skepticism regarding commonly published economic theories and statements.

Economics 246 is presented in two components. In the first half of the course, we will focus on using sample measures to infer something about the characteristics of a population. Using sample data, we undertake the task of estimating (quantitative) statements made about the population. Through proper testing techniques, we can validate these statements.

In the second half of the course, we apply our inferential techniques to the linear regression model. This model allows us to statistically examine relationships between economic variables. We can then use the estimated regression relationship as a tool to quantitatively test economic theories. This is known as econometrics. Hence, practical questions about economic phenomena can be answered in a systematic, legitimate and appropriate manner.

Course prerequisites/corequisites

Note(s)

- *Credit will be granted for only one of ECON 246, ECON 340.*
- *Not open to students registered in or with credit in STAT 261.*
- *STAT 252 cannot be used to satisfy the prerequisites.*

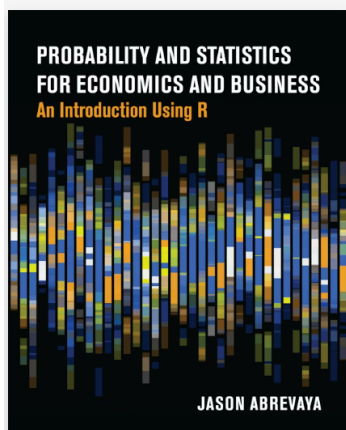
Prerequisites

- *Earned a minimum grade of C in 1 of:*
 - [ECON245](#) - *Descriptive Statistics and Probability (1.5)*
 - [STAT260](#) - *Introduction to Probability and Statistics I (1.5)*

Repeating Courses

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.

Textbook (optional)



Probability and Statistics for Economics and Business

An Introduction Using R

By [Jason Abrevaya](#)

Paperback

eBook

This course follows the structure in Abrevaya (2025) Probability and Statistics for Economics and Business: An Introduction Using R. <https://probstats4econ.com/>. I highly recommend that you follow

Appendices A, B and C of Wooldridge, J., 2020, *Introductory Econometrics: a Modern Approach*, Cengage (the latest edition is the 7th, past editions are fine) – this is the textbook used in ECON345. You can also use the free e-book *Introduction to Econometrics with R* <https://www.econometrics-with-r.org/index.html> (Hanck, Arnold, Gerber and Schmelzer, 2025) or the free e-book *R for Data Science*.
<https://r4ds.had.co.nz/>

Brightspace

Brightspace is used extensively for the course. All students are expected to be fully functional with the system. The lecture notes will be posted in *Brightspace*. Please note that the lecture notes online are only outlines of the actual lectures.

All announcements will be posted in *Brightspace*. Students are advised to check it frequently.

Minimum Grade Requirements

ECON grade requirements for FME, BA and BSc students listed. Students pursuing an Honours degree should consult the academic calendar. *ECON203* and *204* have a C as minimum program requirement, can't take *ECON313* without a minimum C in *203*, *ECON245* has a C+ program requirement, can't take *ECON345* without a minimum C+ in *ECON245*, *ECON350* has a C minimum program requirement, *ECON313* has a B- minimum grade requirement for *ECON435* and *ECON454* and for the FME in general. There is no grade requirement on *ECON313* for students pursuing the BA or BSc in Economics without the finance option.

Learning Outcomes

Course Structure, Assessments, and Grading

Statement about learning components

Learning Outcomes

Economics 246 is the second of a series of courses dealing with statistics and econometrics. At the end of the course students should:

- Understand how to appropriately deal with describing and analyzing basic data sets using economic data.
- Perform simple hypothesis testing and probability.
- Apply the Standard normal distribution, t-distribution, Chi-square distribution, F-distribution to solve probability based problems.
- Summarize sample data effectively and logistically
- Estimation procedures executed correctly
- OLS regression and correlation analysis applied to economic data to develop models with an understanding of basic econometric issues.
- Enhance their personal understanding of Canadian data collection agencies.
- Compiled an R library of script.

Use of AI

No AI permitted in work that is to be submitted for marks.

Grading Scheme

Lectures are presented live, live-streamed on zoom and recorded and posted on Brightspace.

Assignments are posted on and submitted on Brightspace.

Labs are posted on and submitted on Brightspace.

The course grade is determined as follows:

3 homework assignments, each carrying a weight of 5%.

3 in-person midterm exams, each carrying a weight of 25%.

8-10 lab assignments, each carrying a weight of approximately 1%.

Mandatory/Essential Course Components

All exams are essential course requirements, meaning, they must be attempted in order to pass the course. Note that essential course requirements are deferrable, the midterms are considered essential and thus deferrable by definition. Failure to complete the three tests will result in a grade of "N" regardless of the cumulative percentage on the course. N is a failing grade and factors into GPA as a value of 0."

Dates of Assessments, Due Dates of Assignments

Assignment(s): Assignments are posted on Brightspace. Please upload your assignment by midnight on the due date:

Assignment #1 -- due July 19

Assignment #2 -- due August 2

Assignment #3 -- due August 16

Midterm(s): The midterm exams are scheduled for July 22, August 5 and August 21 during class time. Information and coverage will be available one week before the exam.

Grading Scale

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%

Students should review the University's more detailed [summary of grading](#).

Missing Assessments

Should students encounter a situation where they miss an exam or cannot submit an assignment at its due date, they may qualify for an academic concession. Students are required to indicate the specific grounds on which they are requesting an academic concession and provide a justification outlining the impact of the circumstances on their ability to complete course requirements. For in-course extensions, please [fill in the form and follow the instructions on the form](#). In case you miss the final exam, fill in a [request for a deferral](#). I will not respond to informal requests of academic concessions. There are no *automatic academic concessions such as putting the weight of a missed midterm for a legitimate reason on the final, dropping the two worst grades of quizzes etc.*

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 participate as specified in this outline during the first 2 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. 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.

The University reserves the right to use a plagiarism software to detect violations of academic integrity.

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
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 Policies and Statements

Please note that this course is executed in a manner consistent with these University statements and policies.

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

Resources for students

- a. [Student wellness](#)
- b. [Centre for Accessible Learning](#)
- c. [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.
- d. [Library](#) resources
- e. Academic Skills Centre [ASC](#)
- f. Learning Assistance Program ([LAP](#))
- 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](#)

Student Experience of Learning (SEL) Survey

I value your feedback on this course. Towards the end of term, you will have the opportunity to complete a confidential SEL survey 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.

Course Structure

Week	Topic	Chapter	Due Dates and Exam Information
1	Topic 1 Introduction	Chapter 5	
2	Sampling and Sample design Normal Distribution and CLT	Chapter 5; 12, 13	Labs start: July 13 Exam Info: Midterm #1 July 15
3	T-distribution, Chi-square distribution; Topic 2: Estimator Properties Interval Estimation	Chapter 13, 14	Due Dates: Assignment #1 July 19 Exam: Midterm #1 July 22
4	Topic 2: Confidence Intervals	13, 14	Due Dates: Exam Info: Midterm #2 July 29
5	Topic 3 Hypothesis testing Introduction Hypothesis testing single sample	16	Due Dates: Assignment #2 August 2 Exam: Midterm #2 August 5
6	Hypothesis test on the variance Multi-sample hypothesis tests	16	Due Dates: Exam Info: Midterm #3 August 14
7	Topic 4: Regression Analysis, Gauss Markov Correlation	17	Due Dates: Assignment #3 August 16 Exam: Midterm #3 August 21

E-mail Correspondence

Emails should be limited to critical matters, such as inability to attend class, an exam, or prolonged illness, and should include the course name and number in the subject line. Questions on course material should be asked during office hours or in class. The standard format for writing a letter must be used. This means it should begin with a salutation (e.g. Dear....), include full sentences and it must conclude with a signature that includes your **full name and V#**. Text message lingo should not be used.

Electronic Devices

Non-programmable calculators are permitted during exams.

Educational Technology involving storage outside Canada

N/A