

Department of Economics
Carleton University
ECON 4995 A
Review of Mathematical and Statistical Methods of Economics
2025 Summer-Fall Intersession

Instructor: Derek Olmstead E-mail: derek.olmstead@carleton.ca

Lectures: August 18 to 22 and 25 to 28, 10 a.m. to noon ET

Location: Online; see Carleton Central and course Brightspace page for delivery details

T.A: TBD E-mail: TBD

Tutorials: August 20, 22, 26, and 28, 12:30 to 1:30 p.m. ET (times subject to change)

Location: Online; see course Brightspace page for delivery details

Objectives

The aim of the course is to provide a review of a variety of mathematical and statistical methods commonly applied in economic analysis.

Registration

Registration in this course is strongly recommended for all incoming M.A. economics students.

Prerequisites

Admission to the M.A. or Ph.D. program in economics, or permission of the department.

Evaluation

An assignment is due at the beginning of each tutorial. Submissions must be made electronically through the course Brightspace page, where additional detail will be provided. There are four assignments in total, each comprising 10% of the final grade. Late assignments will not be accepted, and the associated weight will be transferred to the final examination.

The final examination will take place on August 29. It will follow a “take-home” format: it will be posted on the course Brightspace page at 9 a.m. ET and an electronic submission of answers will be due by 2 p.m. ET. The final examination will comprise 60% of the final grade (plus any weight transferred from the assignments). If the final examination is missed for any reason, students should contact the instructor to determine the time for a make-up examination on September 2.

Lectures

Lectures will be delivered synchronously online. If a lecture must be cancelled by the instructor, either a replacement lecture will be scheduled or a recording of the lecture will be made available.

Tutorials

The tutorials are an integral part of the course and are important to its successful completion. The tutorials will be delivered synchronously online. In each tutorial, the assignment submitted earlier that day will be discussed and solutions will be provided. Additional questions and problems that are relevant to the topics covered in the lectures may also be discussed in the tutorials. Students are strongly recommended to participate in the tutorials and are required to have webcams to do so.

Course outline and coverage

The topics will be covered as time permits and the order is subject to change. The instructor will indicate which topics will be subject to testing on the final examination.

Mathematical methods

1. Linear algebra
2. Calculus
3. Optimisation

Statistical methods

4. Probability, random variables, and distributions
5. Estimation, hypothesis testing, and inference
6. Linear regression

Recommended texts

Students are not required to purchase textbooks or other learning materials for this course. However, a selection of recommended textbooks includes:

Chiang, Alpha C. and Kevin Wainwright. *The fundamental methods of mathematical economics*. McGraw-Hill. Any recent edition.

Keller, Gerald. *Statistics for management and economics*. Cengage Learning. Any recent edition.

Sydsaeter, Knut, Peter Hammond, Atle Seierstad, and Arne Strom. *Further mathematics for economic analysis*. FT Prentice Hall. Any recent edition.

Tan, Soo. *Applied calculus for the managerial, life, and social sciences: A brief approach*. Cengage Learning. Any recent edition.

Wooldridge, Jeffrey M. *Introductory econometrics: A modern approach*. Cengage Learning. Any recent edition.

These textbooks are available from the [CU Bookstore](#) and many online book retailers.

Online resources

This course is structured to follow selected chapters of the textbooks listed above. Online resources are available from the publishers' websites for new purchases of the Keller, Tan, and Wooldridge textbooks. These materials consist of practice problems, online assignments, and practice tests. Access to these resources is not mandatory for the completion of the course.

Communications policy

To contact the instructor or the T.A., please use the email function available on the course Brightspace page. Email will receive a response within 24 hours.

No distribution of course materials

Posting of course material to Internet websites is prohibited. Materials created for this course, including presentations, posted notes, assignments, and examinations, remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

Academic support

The [Centre for Student Academic Support \(CSAS\)](#) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning. CSAS offers academic assistance with online student success, course content, academic writing and skills development.

Plagiarism

Please be aware that plagiarism is a serious offence at Carleton and should be recognised and avoided. For information on how to do so, please see "[Pammett on Plagiarism and Paraphrasing](#)."

Requests for academic accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation

Write to the instructor with any requests for academic accommodation during the first week of class, or as soon as possible after the need for accommodation is known to exist. For more details, please visit [Equity Services](#).

Religious obligation

Write to the instructor with any requests for academic accommodation during the first week of class, or as soon as possible after the need for accommodation is known to exist. For more details, please visit [Equity Services](#).

Students with disabilities

Students with disabilities requiring academic accommodations in this course must contact a coordinator at the [Paul Menton Centre for Students with Disabilities \(PMC\)](#) to complete the necessary Letters of Accommodation. After registering with the PMC,

students must make an appointment to meet and discuss their needs with the instructor to make the necessary arrangements as early in the intersession as possible.

For a complete list of accommodations see the following link:

<https://students.carleton.ca/course-outline/>.