

**Department of Economics**  
**Carleton University**  
**ECON 3001A – Mathematical Methods of Economics**  
**2022 Early Summer (May–June)**

**Instructor:** Hassan Faryaar  
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**In-class Lectures:** Monday and Wednesday, 18:05 - 20:55, Classroom: Minto Centre 5050  
**Office Hours:** Thursdays, 17:00 - 18:00 or by appointment  
**Tutorials:** Monday and Wednesday, 16:35 - 17:55, Classroom: Minto Centre 5050  
**TA:** TBA

## Prerequisites

ECON 1001 or ECON 1000 or FYSM 1003 with a grade of C- or higher; and ECON 1401 and ECON 1402 (or equivalent) with a grade of C- or higher in each and a combined grade point average in ECON 1401 and ECON 1402 of 6.50 or higher. Students who believe they have taken a similar background course or courses from another university must provide appropriate documentation to the [Department of Economics Undergraduate Administrator](#). A grade of C+ or higher is required to qualify for ECON 4001, ECON 4020, ECON 4021, ECON 4025, ECON 4026 and a grade of C- or higher for ECON 4053.

## Course Description

This course is designed to provide students with a knowledge of some of the basic mathematical tools used in economic theory. Topics include: Concave and convex functions, homogeneous and exponential functions, equilibrium analysis, implicit functions and implicit differentiation. We also study constrained optimization and the envelope theorem, as well as comparative static methods applied to models such as utility maximization and least-cost production. If time permits, we shall provide some coverage of economic models involving integration and differential equations.

## Required Text

Fundamental Methods of Mathematical Economics, 4th edition, McGraw Hill, by A.C. Chiang and K. Wainwright.

**Reading List:** Additional readings or material may be assigned during the term.

# Evaluation

The final course grade will be calculated as a weighted-average of the following four components:

- First Assignment: 10% (will be posted on May 18 – due date: May 25)
- Midterm: 35%, the exam date: May 25 (will be held during the lecture time)
- Second Assignment: 10% (will be posted on June 08 – due date: June 15)
- Final Examination: 45%

There will be no deferred midterm exam/assignments. Students who can document a compelling reason for the missing of any midterm exam or assignments will be excused and the weight of the midterm/assignments will be automatically added to their final exam. The final exam will take place during the Summer term examination period at a time set by the University. The final exam is cumulative.

# Tutorials

The tutorial sessions will focus on key concepts of the lectures, assignments and home works that will support students in understanding the lecture materials.

# Course Outline

1. Introductory material (Chapters 1-3: will be covered briefly)
2. Linear models and Matrix Algebra (Chapters 4, 5)
3. Derivatives and Comparative Statics (Chapters 6, 7, 8)
4. Optimization (Chapter 9)
5. Exponential and Logarithmic Functions (Chapter 10)
6. Multivariable Optimization (Chapter 11)
7. Constrained Optimization (Chapters 12, 13)
8. Integration and Economic Dynamics, if time permitted (Chapters 14,15)

## Regrading

Any request for the regrading of the assignments or exams must be contacted to the instructor within two weeks after students receive their grade. Students are required to send e-mail to the instructor with the subject “ECON 3001A-REQUEST FOR REGRADING” explaining the reason(s) for requesting a reappraisal of their graded work. Regrading will apply to the entire assignment/exam, not just the contentious question. As a result, the revised grade maybe higher than, lower than or the same as the original grade. Exams or assignments completed in pencil or erasable ink will not be regraded.

### Note:

For verification and security purposes, I will not reply to emails originating from non-Carleton e-mail accounts, and which are not signed with a student’s name and student number. Assignments and changes to schedules will be made available on cuLearn only.

## 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 course content, academic writing and skills development. For more details, visit the [CSAS website](#).

## Plagiarism

Please be aware that plagiarism is serious offence at Carleton and should be recognized and avoided. For further information, please see [Academic Integrity and Offenses of Conduct](#) .

## 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:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the [Equity Services website](#)
- **Religious obligation:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the [Equity Services website](#).
- **Academic Accommodations for Students with Disabilities:** If you have a documented disability requiring academic accommodations in this course, please contact the Paul

Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting an accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the [Paul Menton Centre website](#).

- **Survivors of Sexual Violence** As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit the website for the [Sexual Assault Support Services](#).

- **Accommodation for Students Activities** Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the [policy](#).