

Mathematics for Economists Syllabus

Department of Economics

ECON 3700 / MATH 3700 Fall 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.

Course Instructor

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Email "office hours" preferred.
In person office hours by appointment

Course Description

This course presents mathematical methods used in modern economics. The lectures concentrate on the basic concepts of analysis, comparative statics and optimization theory. Topics include an introduction to set theory and matrix algebra, the implicit function theorem, unconstrained optimization, constrained optimization with equality and inequality constraints, and intertemporal choice.

Course Prerequisites

ECON 2200.03 (or ECON 2210.03 or ECON 2220.03), ECON 2201.03, and MATH 1000.03 or equivalent with minimum grades of C or permission of the instructor.

Student Resources

It is not possible to schedule office hours to suit everyone. Please contact me by email instead, and I will respond as soon as possible.

Course Structure

ECON/MATH 3700 will be delivered in-person and not recorded.

Lectures

On Mondays and Wednesdays from 2:35 pm to 3:55 pm in Life Sciences Centre C202

Course Materials

Detailed lecture notes will be available on the ECON/MATH3700 BrightSpace site for the course. The text *Mathematics for Economists* by C.P. Simon & L. Blume; published by Norton, 1994 is a suitable reference text.

Learning Objectives

A student who is successful in this course should be able:

- To convert a system of linear equations into matrix format.
- Determine whether a solution to a system of linear or non-linear equations, which describes and economic model, exists.
- Given a system of equations describing an economic model, compute the impact on the equilibrium value of an endogenous variable which results a small change in an exogenous variable.
- Compute the optimum values of choice variables (possibly time-dependent) in a system subject to equality and inequality constraints.

Assessment

Component	Weight	Date	
Assignments	20%	21 Oct 2026	There will be eight assignments. Each assignment will have the same weight, 2.5% of the total 20%. The time interval between assignment due dates will be approximately one week.
Midterm	35%		The Midterm be held during regular class time on Wednesday, 21 October, 2:30 pm to 4:00 pm and will cover the material presented prior to that date.
Final Exam	45%		

The date of the final exam will be set by the registrar and will cover all the course material.

Assignments must be done individually but discussion about the assignments is encouraged. Submit assignments electronically before the due date to the BrightSpace for the course. ".pdf" format is preferred.

Conversion of numerical grades to Final Letter Grades

$(89.5, 100] \rightarrow A^+$	$(84.5, 89.5] \rightarrow A$	$(79.5, 84.5] \rightarrow A^-$	$(76.5, 79.5] \rightarrow B^+$
$(72.5, 76.5] \rightarrow B$	$(69.5, 72.5] \rightarrow B^-$	$(64.5, 69.5] \rightarrow C^+$	$(59.5, 64.5] \rightarrow C$
$(54.5, 59.5] \rightarrow C^-$	$(49.5, 54.5] \rightarrow D$	$[0, 49.5] \rightarrow F$	

Course Policies on Missed or Late Academic Requirements

Late assignments will not be accepted. Missed assignments will be given a score of zero. There is no make-up midterm and a missed midterm will be given a score of zero. If a class is cancelled (due to weather, for example) on the day when the in-class tests is scheduled, the test will be rescheduled. If a class is cancelled on a non-test day, the decision to make up the class will depend on circumstances.

The goal of these policies is fairness to everyone, but the policies may not apply in unusual circumstances.

Course Policies related to Academic Integrity & Artificial Intelligence

Each of the eight assignments is to be done individually, but consultation about the assignments with other students and with the instructor is allowed and is encouraged. The midterm and final exams are closed book with no external aids. A list of information such as formulas will be provided with the exams. The use of AI may be helpful in understanding the course material, but is prohibited on exams.

Course Accessibility

Refer to Dalhousie's [Student Accommodation Policy](#) for information about available academic accommodation. Contact the [Student Accessibility Center](#) to begin the process of requesting a formal academic accommodation.

Course Content

<i>Approximate Dates</i>	<i>Topic</i>	<i>Notes Section</i>
9 Sep	Introduction	§1
14 Sep	Equilibrium Analysis	§2
16 - 28 Sep	Linear Models & Matrix Algebra	§3
30 Sep - 19 Oct	Differentiation and Comparative Statics	§4.1-§4.7
21 Oct	Midterm	
26 Oct	Analysis of Implicit Function Models	§4.8
28 Oct	Exponentials & Logarithms	§5
2 Nov	Taylor Series	§6
4, 16, 18 Nov	Unconstrained Optimisation	§7
23, 25, 30 Nov	Optimization with Equality Constraints	§8
2, 7 Dec	Optimization with Inequality Constraints	§9
9 Dec	Intertemporal Choice	§10

Syllabus Appendix

For information about supports, university policies, and guidelines, visit [Syllabus Appendix: Student Supports & University Statements, Policies, and Guidelines](#).