

**ECON\*4700 F24**  
**Advanced Mathematical Economics**  
**0.50 Credits**

## General Course Information

<b>Instructor:</b>	Henry Thille
<i>Email</i>	hthille@uoguelph.ca
<i>Office Location</i>	702 MacKinnon
<i>Office Hours</i>	Tues. 12:00-13:30
<i>Department/School</i>	Department of Economics and Finance
<b>Class Schedule:</b>	T/Th 10:00 AM - 11:20 AM
<b>Pre-requisites:</b>	<a href="#">ECON*3710</a> , <a href="#">ECON*3740</a>

## Course Description

This course will address some advanced topics in mathematical economics, covering two broad themes. The first part of the course will focus on multivariate analysis and optimization, culminating with the concave programming problem. The second part will cover integration and dynamic analysis, focussing on difference and differential equations. The topics examined throughout will be applied to economic examples.

## Topics

The Courselink Calendar will contain finer detail and more precise dates for the following topics that will be covered.

Review of multivariate calculus and optimization. Hoy Chs. 11, 12, 13.

Comparative statics. Hoy Ch. 14.

Concave programming. Hoy Ch. 15.

Integration. Hoy Ch. 16.

First order difference equations, Hoy Chs 18, 19

First order differential equations. Hoy Chs. 21, 22.

Second order differential equations. Hoy Ch. 23.

Systems of differential equations. Hoy Ch. 24.

Dynamic optimization. Hoy Ch. 25. (Time permitting)

## Course Assessment

There will be two in-class midterm exams worth 20% each, one on **Thurs., Sept. 26** and one on **Tues., Nov. 5**. The final exam, TBA, is worth the remaining 60% of the course grade. The final exam will cover the entire semester's work. There will be no deferred midterms. If a student misses the first midterm, the weight will be transferred to the second midterm and the final (10% each). If the second midterm is missed, the weight will be transferred to the final exam.

## Course Resources

### Textbook:

Hoy, M., J. Livernois, C. McKenna, R. Rees, and T. Stengos. Mathematics for Economics. 3rd ed. MIT Press. 2011.

## Course Policies

### Grading Policies

<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/grades/>

Students' grades will depend on the quality of their explanation of their logic in coming up with an answer. Simply having a correct final numerical answer is not sufficient for an A grade. Generally, well-reasoned, clear answers will earn a higher grade than a poorly-reasoned, unclear answer.

### Email policy

Email is to be used for administrative questions only. More complicated questions regarding course material should be asked in class, office hours, or via an arranged meeting.

## University Policies

### Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for Academic Consideration:

<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

### Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

### Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email [sas@uoguelph.ca](mailto:sas@uoguelph.ca) or see the website: <https://wellness.uoguelph.ca/accessibility/>

### Course Evaluation Information

Please refer to the [Blue by Explorance system](#).

### Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

**Drop date**

The last date to drop one-semester courses, without academic penalty, is **Friday November 29, 2024**. For regulations and procedures for Dropping Courses, see the Academic Calendar:

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>