

**University of Waterloo**  
**Department of Economics**  
**Econ 211 – Section 1**  
**Introduction to Mathematical Economics**  
**Spring 2017**  
**Lecture: Monday and Wednesday 8:30-9:50am, RCH 207**  
**Tutorial: Tuesday 8:30-9:20am, HH 334**

**Instructor Information**

Instructor: Ryan George

Office: HH 218

Office Phone: 519-888-4567 ext. 33169 (please do not leave voice mails)

Office Hours: Monday to Thursday 12 noon – 1pm, or by appointment

Email: r22georg@uwaterloo.ca

The instructor will only respond to emails that include “Econ 211” in the subject line of the message.

**T.A. Information**

TBA

**Course Description**

The course surveys basic mathematical tools of particular value for economic analysis. The core concern of the course is with optimization of real-valued functions of one and two variables and the study of systems of linear equations. Along the way we will consider such topics as functions, limits, differentiation, continuity, and concavity. Economic applications will be presented.

**Course Goals and Learning Outcomes**

Through lectures, reading and practice in solving problems, the course aims to

- increase students’ proficiency in the use of mathematics in the context of economic analysis

**Required Text**

- Hoy, M., Livernois, J., McKenna, C., Rees, R., and Stengos, T., *Mathematics for Economics*, Third Edition, The MIT Press 2011.

One copy of the 3<sup>rd</sup> edition is on reserve in the Dana Porter Library.

## Readings Available on LEARN

- Announcements, assignments and their solutions, midterm solutions.
- Recommended textbook problems.

## Course Requirements and Assessment

Assessment	Date of Evaluation (if known)	Weighting
Tutorial Participation		10%
Assignments (4 @ 2.5% each)	TBA	10%
Midterm	June 7 <sup>th</sup>	35%
Final Examination	Exam Period (scheduled by Registrar's Office)	45%
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Total		100%

### Tutorial Participation

Students are required to attend 10 tutorial meetings over the course of the term. Exercises will be reviewed and students will be given problems to solve and submit and these will be graded (1 attended tutorial, 2 used correct approach, 3 solved problem out of 3). The best 8 out of 10 tutorial performances will be used to calculate the tutorial participation mark. A *midterm review* tutorial will be held on June 6<sup>th</sup>.

### Assignments

There will be four assignments over the course of the term. Each will count for 2.5% of the final grade. The assignments will be posted on LEARN, and due in class. Due dates to be announced. Unless an arrangement has been made with the instructor, *no late assignments will be accepted*.

### Midterm Examination

The midterm exam will be **held in class on June 7<sup>th</sup>**. It will test students' proficiency with the material covered in the lectures, assignments and practice problems.

### Final Examination

The final exam is comprehensive. The date will be set by the Registrar's Office.

## Course Outline (Tentative)

Week	Dates	Lecture Topic	Lecture Readings Due
1	May 1 and 3 Tutorial May 2	<ul style="list-style-type: none"> <li>Sets, Functions and Sequences</li> </ul>	Ch 2
2	May 8 and 10 Tutorial May 9	<ul style="list-style-type: none"> <li>Limits and Continuity</li> </ul>	Ch 3 and Ch 4.1
3	May 15 and 17 Tutorial May 16	<ul style="list-style-type: none"> <li>Derivative</li> </ul>	Ch 5
4	May 23 (Monday schedule on Tuesday) and 24 NO tutorial	<ul style="list-style-type: none"> <li>Optimization of Function of One Variable</li> </ul>	Ch 6
5	May 29 and 31 Tutorial May 30	<ul style="list-style-type: none"> <li>Integration</li> </ul>	Ch.16
6	June 5 and 7 Tutorial June 6 - review	No Class June 5 <ul style="list-style-type: none"> <li><b>Midterm June 7</b></li> </ul>	
7	June 12 and 14 Tutorial June 13	<ul style="list-style-type: none"> <li>Linear Algebra</li> </ul>	Ch 7 and 8
8	June 19 and 21 Tutorial June 20	<ul style="list-style-type: none"> <li>Matrix Determinant and Inverse</li> </ul>	Ch 9
9	June 26 and 28 Tutorial June 27	<ul style="list-style-type: none"> <li>Topics in Linear Algebra</li> </ul>	Ch 10.1 and 10.3
10	July 3 and 5 Tutorial June 4	<ul style="list-style-type: none"> <li>Multivariate Calculus</li> </ul>	Ch 11
11	July 10 and 12 Tutorial June 11	<ul style="list-style-type: none"> <li>Unconstrained Optimization with Two Variables</li> </ul>	Ch 12
12	July 17 and 19 Tutorial June 18	<ul style="list-style-type: none"> <li>Constrained Optimization with Two Variables</li> </ul>	Ch 13
13	July 24	<ul style="list-style-type: none"> <li>Course Review and Exam Details</li> </ul>	

### **Missed Work and Accommodation Regarding Assessment**

If a student is unable to take a midterm exam for documented reasons, a make-up exam will be offered at an arranged time. ***Please note that students who decide to take an exam cannot be given accommodation after the fact due to illness or personal complicating factors that may have affected their performance.*** If you are not well on the day of an exam it is advisable that you not take the exam and obtain valid documentation of the circumstances of this decision.

### **Electronic Device Policy**

To avoid disruptions to the learning environment handheld devices must be turned off during the lecture and laptops must be used strictly for lecture-related purposes. If a student's use of a laptop becomes a distraction for adjacent students that student will be asked to discontinue its use.

### **Attendance Policy**

Lectures are an important component of the learning process and should be attended regularly.

## **Faculty of Arts Statements**

### **Academic Integrity**

***Academic Integrity:*** In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility. See the [UWaterloo Academic Integrity webpage](#) and the [Arts Academic Integrity webpage](#) for more information.

***Discipline:*** A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to [Policy 71 - Student Discipline](#). For typical penalties check [Guidelines for the Assessment of Penalties](#).

***Grievance:*** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70 - Student Petitions and Grievances](#), Section 4. When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

**Appeals:** A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 - Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72 - Student Appeals](#).

#### **Accommodation for Students with Disabilities**

**Note for students with disabilities:** The [AccessAbility Services](#) office, located on the first floor of the Needles Hall extension (1401), collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

## **Mental Health Services**

[Mental Health Services](#) aim is to provide holistic programming and services to help you lead a healthy and balanced life. We strive to provide a secure, supportive environment for students of all orientations and backgrounds.

Students suffering from problems with anxiety, depression, problems with sleep, attention, obsessions or compulsions, relationship difficulties, severe winter blues, etc., may make an appointment by phone or in person. Appointments are usually available within two days of initial contact with one of our medical doctors. All contacts are completely confidential.

### **Contact Health Services**

[Health Services Building](#)

Call 519-888-4096 to schedule an appointment

Call 1-866-797-0000 for free 24/7 advice from a health professional

### **Contact Counselling Services**

[Needles Hall Addition, NH 2401](#)

Call 519-888-4567 x 32655 to schedule an appointment

[counserv@uwaterloo.ca](mailto:counserv@uwaterloo.ca)

## **Territorial Acknowledgement**

We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabe and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes six miles on each side of the Grand River.