2770.01 Introductory Mathematical Economics
Winter 2017
Credit weight: 0.5

General Course Information

Instructor: **Asha Sadanand**

Email asadanan@uoguelph.ca
Office Location *MacKinnon 730*
Office Hours MWF 10:30 – 11:30
Department/School Economics and Finance

TA: Chaoyi Chen

Email chaoyi@uoguelph.ca ,
for questions concerning Maple TA please contact Haibin (haibinuoguleph@gmail.com)
Office Hour TBA

Class Schedule: **Section 1: T Th 10:00 – 11:20, LA 204**

Labs:

Lab 1	Fri	11:30 - 12:20	MCKN 238
Lab 2	Fri	10:30 - 11:20	MINS 017
Lab 3	Fri	9:30 - 10:20	MCKN 232

Please check webadvisor for any changes in room assignments.

Course Description

This course aims to provide students with the basic mathematical tools required for elementary theoretical economic analysis. The mathematics largely covers calculus and matrix algebra. The emphasis is not only on the mathematics but also on the building and solution of economic models.

Please note that the tools and techniques learned in the MATH prerequisites are absolutely necessary. Please use the math review posted on courselink to assess your level of understanding and get help if you feel that it is necessary. I will expect that you know these tools and techniques.

PREREQUSITES: ECON*1100, ECON*1200, and MATH*1000 or MATH*1030 or MATH*1080 or MATH*1200.

Content

We will cover the following topics, among others:

Basic Math – student's responsibility – please review.

Calculus of one variable: Derivatives, differential, optimization

Algebra: systems of linear equations, matrices, determinants

Calculus of many variables: Derivatives, unconstrained and constrained optimization, comparative statics

For a detailed class schedule with chapters, labs, quiz topics and dates, and exam dates, please refer to the class website on courselink (under 'Content'). Please Note: The instructor reserves the right to modify the covered topics and assignments throughout the course.

Course Assessment

			Dates and Times
11 Quizzes	20%	Some online, some in Lab or class, some a mixture Only the 10 best ones count.	Check courselink.
Midterm	30%		Tuesday, Feb 28 *Makeup midterm Friday, Mar 3, 5:00pm – 6:30, McK 720
Final Exam	50%		Apr 13, 7:00pm, room TBA
		*To be allowed to write a makeup midterm you need to have a valid reason, that has been cleared by me.	

Important Information (Including Grading Policies)

Lectures and Labs	Please make sure you always attend the lecture and lab you are registered for. It cannot be guaranteed that lectures in different sections will cover materials at exactly the same time.
Online Quizzes	Some will be Maple TA and some on courselink or in class quizzes. More details will be available later on courelink.

Midterms and Final

Missed Exams and Time Conflicts
Students with time conflicts with the final exam cannot register for this course. If the final exam is missed, the course is not completed.

If you have a documented medical or compassionate reason for missing the midterm, you will have an opportunity to write a make-up exam at a given date and time (there will be only one make-up per midterm), or you may choose to transfer the weight to the final exam. If you fail to write the make-up exam, the weight of the midterm will be transferred to the final exam. If you miss the midterm without a legitimate reason, your grade for the midterm will be 0%.

It is the student's responsibility to inform the instructor of a time conflict with a midterm exam within the first two weeks of the course and to discuss how this time conflict will be handled. After this period, it is in the instructor's discretion to decide how the time conflict will be handled.

Communication and Office Hours

I am available for students during my office hours. The teaching assistant will also hold office hours (see courselink for times, days, and rooms). Teaching assistants are only available for discussions and questions regarding the course material and course requirements where they are involved in grading; they are not available for general discussions about grades and other personal matters. **Please make sure that you visit the TA first before you come to my office hours to discuss course materials. My office hours tend to be very full.**

If you have a question about the course in general, or about the course material, please post it on the online discussion board instead of sending an email to me. Indicate the theme of the question (or the question itself, if short) in the subject line. If you have a question, it is likely that other students wonder about this, too. If you post the question, everyone can see the answer. I will answer to a posted question within 24-48 hours and during standard working times and days. If you know the answer to a posted question, do not hesitate to answer it before I do. This will be very helpful to your fellow students.

If you have a personal questions or concerns, please email me. I will respond to emails within 24-48 hours and during standard working times and days. **I do not accept or answer emails that to not come from a *uoguelph* account and do not have "Econ 2770" in the subject line.**

Important Notes

1. If your performance on the **final exam is better** than your term work (quizzes plus midterm), **and you pass the final exam,** the weights will be shifted to 25% for term work and 75% for the final examination.

WARNING: Do not become complacent because of this opportunity. Most people do better on the quizzes and midterm than they do on the final exam; and falling behind makes it difficult to do well at all in the course.

2. The quizzes are only done on line or written in class on the assigned date. Make-up quizzes will **not** be given. Students who miss the midterm due to **documented** compassionate or medical reasons may be permitted to write the exam at another time. The quizzes will be based on the material covered since the last quiz or exam. The midterm will cover everything from the beginning of the course until the time of the exam. The final exam will be comprehensive and based on the entire course with somewhat more weight on the part after the midterm.

3. The learning objectives are achieved initially through lectures, which will include presentation of material and working through examples. Simple memorization of formulae only will not produce good results. The only way to learn mathematics and economics is by DOING mathematics and economics. I shall be giving weekly exercises. Although they are not worth many marks, they will be essential preparation for the quizzes and the exams. In addition, the labs will be used for going through some of the exercises. Labs will be held most weeks. You must attend the lab to which you have been assigned.

4. Remember that the course is about mathematical techniques AND their application to economics. Formulating an economic problem mathematically is a challenging but an immensely useful skill. As the course evolves, you will see more and more links with the theories you are encountering or have encountered in intermediate micro and macro courses.

5. It is very important to **keep up** with the course. The exercises and quizzes will help you pace yourself. **Don't fall behind!**

Extra Credit Opportunities

There may be occasional extra credit assignments throughout the course. They will be announced in class and on courselink. Extra credit assignments will be handwritten and have to be submitted in person (not by email).

Electronic Devices and Recording of Lectures

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

Course Resources

Required Texts:

Mathematics for Economics,   3rd edition, Hoy, Livernois, McKenna, Rees, and Stengos, MIT Press, 2011.

Note: Several copies will be placed on reserve in the library. You may buy a used textbook. You may, however, decide to buy an **ebook** (if available) instead of a hard copy.

Course Website:

The course website is on courselink. Most importantly, some quizzes may be done through courselink. On the website, you will also find all necessary information regarding the course, as well as all announcements made throughout the course and additional online materials (such as solutions to midterm exams). Grades will be posted there as well. The online discussion board for students provides a valuable means of communications between you and your classmates.
Students are required to visit the course website regularly: Announcements will only posted there and not sent by email. Students are expected to be aware of all announcements made on the website (whether or not you receive notification of an announcement).

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/2016-2017/

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 the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csdexams@uoguelph.ca or see the website: https://www.uoguelph.ca/csd/csd-exam-centre-5

Course Evaluation Information

Please refer to the Course and Instructor Evaluation Website

Drop date

The last date to drop one-semester courses, without academic penalty, is <mark>Friday, March 10, 2017</mark>. For regulations and procedures for Dropping Courses, see the Academic Calendar:

https://www.uoguelph.ca/registrar/calendars/undergraduate/2016-2017/

Course Learning Outcomes

Upon successfully completing this course, you will be able to:

Skills

Numerical Problem Solving: Students will learn basic problem solving techniques used in economics. This includes maximization in one and many variables, and solving systems of linear equations. This will be tested in quizzes and two exams.

Analytical Problem Solving: Students will use algebraic and graphical analysis to demonstrate and interpret various economic models, and most importantly to take a given situation (in words) and create the best math model (translate to math) to depict it; then solve the problem using numerical solving methods, and finally explain the solution intuitively (translate back to words). This will also be tested in the quizzes and the exams.

Problem Solving in a Real-World Context: Students will apply the principles learned in this course to critically examine (model and make predictions) everyday economic situations.

Knowledge

Economic modelling (particularly microeconomic), such as analysis of firms in specific markets (e.g., perfect competition, monopoly, oligopoly), or effects of economic policy and government intervention on decision making, and general mathematical methodology for economics.