

UNIVERSITY OF GUELPH
College of Management and Economics
Department of Economics and Finance

ECON*2770.01 - MATHEMATICAL ECONOMICS

Fall 2012

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Office Hours: W 8:45 – 9:45 am

It is your responsibility as a student to be aware of and to abide by the University's policies regarding academic misconduct, e-mail communication, maintaining copies of out-of class assignments, what to do when you cannot meet a course requirement and the drop date for this semester. To better understand these policies, visit:

<http://www.uoguelph.ca/economics/node/1115>

COURSE DESCRIPTION:

The 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

Required Textbooks

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

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

COURSE REQUIREMENTS:

There will be one mid-term exam, weekly online assignments, and a final exam. The dates and relative weights on these requirements are as follows:

On-line assignments (weekly)	Best 10 out of 11	20%
Midterm Exam	Date: Oct 23 rd	30%
Total Term Work		50%
Final	Dec 14 th , 7:00 pm – 9:00 pm	50%

IMPORTANT NOTES:

1. If your performance on the **final exam is better** than your term work (Maple TA assignments and 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. Students who miss the midterm due to **documented** compassionate or medical reasons may be permitted to write the exam at another time. 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 online exercises. Although they are not worth many marks, they will be essential preparation for the exams. In addition, the labs will be used for going through some of the exercises. 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 labs will help you pace yourself. Don't fall behind!

6. e-mail protocol: I am happy to receive queries by email. However, please note that the subject line must contain ECON*2770, and you must use your U of G account, otherwise the e-mail will be deleted. Also, if many messages on the same theme are received, I will respond in class and will not make individual replies. Restrict messages to questions about course content and requests for an appointment only. If you have requests for special consideration, questions about your standing in the course, or other matters requiring discussion you must see me personally. My e-mail is asadanand@uoguelph.ca

7. You will be asked to complete an evaluation for this course sometime during the last two weeks of classes. The Department of Economics' policy regarding the conduct and use of these evaluations can be found at:

<http://www.uoguelph.ca/economics/academics/courses/course-evaluation>

8. The course starts with some 'Review' material. Most of this is entirely your responsibility, as indicated in the course contents below.

COURSE CONTENT**Review (little economics, mostly math background): student's responsibility**

1. Basic arithmetic and algebra:
Hoy, Ch 1 (pp. 3 -10)
2. Sets, subsets, functions:
Hoy, Ch 2.1 - 2.4 (pp. 11 - 60)
3. Sequences and limits:
Hoy, Ch 3 (pp. 61-99)
4. Continuity of functions of one variable with economic applications:
Hoy, Ch 4 (pp. 100-126)

Regular course material (more economic examples and applications):

5. Derivatives and differential for functions of one variable:
Hoy, Ch 5 (excluding section 5.6 on Taylor Series)
6. Unconstrained optimization of functions of one variable:
Hoy, Ch 6 (excluding pp. 217 - 219)
7. Systems of linear equations:
Hoy, Ch 7
8. Matrices:
Hoy, Ch 8
9. Determinants and the inverse matrix:
Hoy, Ch 9
10. Calculus for functions of n -variables:
Hoy, Ch 11.1 - 11.5 (excluding elasticity of substitution pp. 461-463)
11. Optimization of functions of n -variables:
Hoy, Ch 12
12. Constrained optimization:
Hoy, Ch 13 (omit Dual pp. 513 - 514) include Interpretation of λ
13. Comparative Statics
Hoy, Ch 14