

ECONOMICS 311
MATHEMATICAL ECONOMICS
SPRING 2011

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Office Hours: Monday, Tuesday & Thursday, 12:00 pm - 1:30 pm.

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Meetings

The lecture hours are Tuesday and Thursday from 2:30 pm to 4:20 pm and will take place in RCH 308. I will be available in my office before class for the scheduled office hours. There will be no class or office hours on May 24, 2011. If contacting me by e-mail, please, indicate **ECON 311** as the subject of the letter. Due to time constraints I will not reply to questions about the course material via e-mail. Please, note that class attendance is essential for the successful completion of the course.

Course Information

Overview

The course is designed to further the training of students in the mathematical tools used in economics. The course will build on the concepts introduced in ECON 211 (Introduction to Mathematical Economics) or its equivalents, as well as introduce new concepts and methods. Please, note that the difficulty level of the course may be higher than that of ECON 211. The primary focus of the course will be on the diverse optimization methods including recursive methods. The course will also cover some introductory analysis concepts. Students who desire to pursue graduate studies in economics will find the course especially useful.

Textbooks

The required textbook for the course is *Mathematics for the Economists* by Carl P. Simon & Lawrence Blume. I will also recommend that you obtain a copy of Avinash K. Dixit's *Optimization Methods in Economic Theory*.

Course Outline

The presented outline is tentative and is subject to change based on the progress made in the lectures.

1. Set Theory and Notation
2. Real Numbers
3. Metric Spaces
4. Advanced Topics in Linear Algebra
5. Constrained Optimization: Karush-Kuhn-Tucker Theorem
6. Dynamic Optimization
7. Optimal Control Theory

Evaluation

Grade

The final grade will be determined based on four assignments worth 5% each, one midterm test worth 30%, and a final examination worth 50%. In the case of a significantly better performance on the final examination when compared to the midterm, the grade will be re-weighted with more emphasis on the final. The midterm examination will take place on Tuesday, June 14, 2011 during the regular class time. The final examination will take place at a time scheduled by the Registrar's Office.

Re-marking

If a student wants a test re-marked he/she must notify the instructor within 5 business days after the marked test has been distributed in class. The test will be re-marked in its entirety and, as a result, the grade can either increase, decrease, or remain unchanged.

Policy on Missed Assignments and Tests

There will be no make-up tests or assignments. Students will receive a mark of zero on a missed assignment or test without the appropriate medical certificate. For students with the relevant medical certificate the weight of the missed test and/or assignments will be shifted to the final examination.

University Rules

Academic Integrity

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.

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

<http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>

Discipline

A student is expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (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.

<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>

Appeals

A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals

<http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>

Note for Students with Disabilities

The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, 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 OPD at the beginning of each academic term.