University of Waterloo
Department of Economics
Economics 211
Introduction to Mathematical Economics
Lectures: Tuesday, Thursday 1:00-2:20, DWE 3522
Tutorial: Tuesday 2:30-3:20, AL 124

Course Outline Winter 2018

Instructor Information

Instructor: John Burbidge
Office: HH-125
Office Hours: Th: 2:30-4:30, or by appointment
Email: jburbidg@uwaterloo.ca
Course web page: http://artsonline.uwaterloo.ca/jburbidg/
Tutorial leader: Renfang Tian
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Course description

The undergraduate calendar description of Econ 211 is:

Course ID: 004890 Introduction to Mathematical Economics: An introduction to mathematical techniques of particular use in economics. Topics include matrix algebra, differentiation, partial derivatives, optimization techniques including constrained optimization - all developed within the context of economic problems. Prereq: ECON 101 or ECON 100/COMM103; one of MATH 104, 4U Advanced Functions, 4U Calculus and Vectors; Not open to students in the Faculty of Mathematics.

Note that Math 104 or its equivalent is a pre-requisite. The undergraduate calendar description of Math 104 is: An introduction to applications of calculus in business, the behavioural sciences, and the social sciences. The models studied will involve polynomial, rational, exponential and logarithmic functions. The major concepts introduced to solve problems are rate of change, optimization, growth and decay, and integration.

Course Goals and Learning Outcomes

Economics is the most mathematical of the social sciences. This course, together with Econ 221, Statistics for Economists, provides students with the mathematical background required to complete the core second-, third- and fourth-year courses in economic theory and econometrics.

Required Text

Michael Hoy, John Livernois, Chris McKenna, Ray Rees and Thanasis Stengos, 2011, Mathematics for Economics, third edition (Cambridge, MA: MIT Press), together with its Solution Manual.

Topics

Basics: Sets, numbers, functions, sequences, limits and series: Hoy et al., chapters 2-3.

Univariate calculus and optimization: Hoy et al., chapters 4-6.

Linear algebra: Hoy et al., chapters 7-10.

Multivariate calculus and optimization: Hoy et al., chapters 11-14.

Evaluation

The final grade will be based on tutorials, five take-home assignments, two term tests and a final exam.

Tutorials (10% of the final grade)

Tutorial attendance/participation marks will start in week 1. Students will achieve a maximum of 3 marks each week based on their solution to a random question asked during the tutorial session. A mark of 1 will be allocated as an attendance mark. Students who hand in their solution with the correct approach but wrong answer will receive 1 additional mark on top of attendance mark, whereas students who hand in a solution with the correct approach and correct answer will receive 2 additional marks on top of the attendance mark. The total number of tutorial sessions is 12; the highest 10 marks will be used to calculate the tutorial grade (again, this is worth 10% of the final grade).

Assignments (10% of the final grade)

There will be 5 assignments, worth 2% each. The assignments and their due dates will be posted on the course web site, which is stated above. The assignments must be submitted in person in class on their due dates.

In-class tests (30% of the final grade)

There will be two in-class tests, each worth 15% of the final grade. The first test will be held Thursday February 1st. The second test will be held Thursday March 8th.

Final Examination (50%)

The final examination will be on the entire term's work and will be scheduled by the Registrar.

Evaluation, continued

There will be no make-up assignments or tests. If a student misses an assignment or a test, and the student can provide credible documentation for missing the assignment or the test, the weight on the assignment or test will be transferred to the final exam.

Economics Department Deferred Final Exam Policy

Deferred Final Exam Policy found at https://uwaterloo.ca/economics/undergraduate/resources-and-policies/deferred-final-exam-policy

Cross-listed course

Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

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 Support
All of us need a support system. The faculty and staff in Arts encourage students to seek out mental health supports if they are needed.

On Campus

- Counselling Services: counselling.services@uwaterloo.ca / 519-888-4567 ext 32655
- MATES: one-to-one peer support program offered by Federation of Students (FEDS) and Counselling Services
- Health Services Emergency service: located across the creek form Student Life Centre

Off campus, 24/7

- Good2Talk: Free confidential help line for post-secondary students. Phone: 1-866-925-5454
- Grand River Hospital: Emergency care for mental health crisis. Phone: 519-749-433 ext. 6880
- Here 24/7: Mental Health and Crisis Service Team. Phone: 1-844-437-3247
- OK2BME: set of support services for lesbian, gay, bisexual, transgender or questioning teens in Waterloo. Phone: 519-884-0000 extension 213

Full details can be found online at the Faculty of ARTS website
Download UWaterloo and regional mental health resources (PDF)
Download the WatSafe app to your phone to quickly access mental health support information

Territorial Acknowledgement
We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabeg 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.