ECON 3G03: Introduction to Advanced Economic Theory

Fall 2018

Instructor: Maxim Ivanov **Email:** mivanov@mcmaster.ca
Office: 408 KTH **Office Hours:** Wednesday, 2:00 – 3:00PM
Lecture: Monday 9:30AM – 10:20AM, Thursday 9:30AM – 11:20AM in JHE 210

COURSE DESCRIPTION

This course is an introduction to the mathematical methods commonly used in economic theory.

PREREQUISITES

One of MATH 1B03 or STATS 1L03; and MATH 1M03 or equivalent; and a grade of at least B- in each of ECON 2GG3 and ECON 2HH3 and registration in an Economics program. Subject to approval by the Department of Economics, MATH 1B03 or STATS 1L03 can be replaced by another course covering the topic of matrix algebra.

COURSE OBJECTIVES

The purpose of the course is to make students comfortable with the application of mathematics to economic theory and prepare them for their third- and fourth- year economic courses. The course will review and cover topics in linear algebra, calculus, constrained and unconstrained optimization, and comparative-static analysis. The emphasis of the course will be on problem-solving with illustrative examples taken from various sub-fields of economics.

CLASS FORMAT

In Person, Lecture

COURSE MATERIALS AND TEXTS

- Textbook (mandatory): “Fundamental Methods of Mathematical Economics”, by Alpha C. Chiang and Kevin Wainwright, 4th edition, McGraw Hill.

AVENUE TO LEARN

Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

COURSE EVALUATION – OVERVIEW

1. Mid-term Exam 1 – 30%
2. Mid-term Exam 2 – 30%
3. Final Exam – 40%

COURSE EVALUATION – DETAILS

Mid-term Exams

There will be two mid-term in-class exams. Each mid-term exam is worth 30% of your final grade. The dates of the mid-term exams are:

October 4 and **November 1**.

Final Exam

The final exam is administered during the final exam week and is comprehensive. The final exam is scheduled by the Registrar, and missed final exams will be dealt with under the Registrar's rules.

COURSE POLICIES

Grades

The grades are based on the **cumulative distribution of scores** at the end of the semester with the following percentiles: **A – 20-25%, B – 25-30%, C – 25-30%, D – 10-15%, F – 10-15%**. **NOTE:** The grading scheme is fixed. All requests about changing it, for example, using the standard grading system, reallocating the weights of exams, dropping the lowest score, providing extra work, etc. will be DISREGARDED.

Grade Adjustment Techniques

The above grade percentiles are **approximate**. "+"s, "–"s, and minor adjustments (for example, because some students drop the class before the end of the semester, many students receive similar scores, etc.), if needed, will be taken into account at the end of the semester.

Absences, Missed Work, Illness (MSAF)

If you have a valid and verified reason not to take the midterm exam, you must notify the instructor within the time frame specified by the university policies. In this case, you will have to take the make-up midterm exam (usually within 7 days since the date of the missed exam). The format of the make-up exam is identical to the format of the missed exam. Because the weight of each mid-term exam is 30%, in the case of missing the mid-term exam you must come the Faculty Office and submit supporting documentation. Filling up the MSAF form only is NOT sufficient for missing mid-term exams.

Where to Get Help

The instructor's office hours are on Wednesday at 2:00–3:00PM or by appointment in 408 KTH.

UNIVERSITY POLICIES

Academic Integrity Statement

You are expected to exhibit honesty and use ethical behavior in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behavior can result in serious consequences, e.g.

the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy.

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

Academic Accommodation of Students with Disabilities

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements. Academic accommodations must be arranged before classes or academic work begins, and for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca. For further information, consult McMaster University's Policy for Academic Accommodation of Students with Disabilities.

Academic Accommodation for Religious, Indigenous and Spiritual Observances

Students who require academic accommodation due to an Observance must submit a RISO form to their Faculty office, electronically or in person, normally within ten working days from the beginning of each term in which they are anticipating a need for Accommodation. For further information, consult McMaster University's Policy on Academic Accommodation for Religious, Indigenous and Spiritual Observances.

Faculty of Social Sciences E-mail Communication Policy

Effective September 1, 2010, it is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student's own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student's responsibility to ensure that communication is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, the instructor may not reply at his or her discretion.

Course Modification

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check his/her McMaster email and course websites weekly during the term and to note any changes.

WEEKLY COURSE SCHEDULE (TENTATIVE) AND/OR IMPORTANT DATES

Week 1: September 4 – 7

Topic: Economic Models

Readings: Chapter 2

Week 2: September 10 – 14

Topic: Equilibrium Analysis in Economics

Readings: Chapter 3

Week 3: September 17 – 21

Topic: Linear Models and Matrix Algebra

Readings: Chapter 4

Week 4: September 24 – 28

Topic: Linear Models and Matrix Algebra (Continued)

Readings: Chapters 4,5

Week 5: October 1 – 5

Topic: Linear Models and Matrix Algebra (Continued)

Readings: Chapter 5 Notes: Mid-term Exam 1

Week 6: October 8 – 12

Mid-term Recess

Week 7: October 15 – 19

Topic: Comparative Statics and the Concept of Derivative

Readings: Chapter 6

Week 8: October 22 – 26

Topic: Rules of Differentiation and Their Use in Comparative Statics

Readings: Chapter 7

Week 9: October 29 – November 2

Topic: Comparative-Static Analysis of General Function Models

Readings: Chapter 8 Notes: Mid-term Exam 2

Week 10: November 5 – 9

Topic: Optimization: A Special Variety of Equilibrium Analysis

Readings: Chapter 9

Week 11: November 12 – 16

Topic: The Case of More than One Choice Variable

Readings: Chapter 11

Week 12: November 19 – 23

Topic: Optimization with Equality Constraints

Readings: Chapter 12

Week 13: November 26 – 30

Topic: Further Topics in Optimization

Readings: Chapter 13

Week 14: December 3 – 5

Topic: Further Topics in Optimization

Readings: Chapter 13