

**Economics 3G03: Introduction to Advanced Economic Theory**  
**Fall Term 2019**

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Office Hours: 3:30 - 4:30 pm on Wednesdays

**Class Schedule**

Term: September 3 – December 4  
Mid-term Recess: Monday October 14 - Sunday October 20  
Class Time: 11:30 - 12:20 on Wednesdays, 12:30 - 2:20 on Fridays  
Location: BSB B138  
Course webpage: available at Avenue

**Objective**

This course is an introduction to the mathematical methods commonly used in economic theory. The purpose of the course is to make students comfortable with the application of mathematics to economic theory and therefore, prepare them for their third and fourth-year economic courses. The course will review and cover topics in linear algebra and calculus as well as focus on the theories of constrained optimization, differential equations and difference equations. The emphasis of the course will be on problem-solving with illustrative examples taken from various fields of economic study.

**Exams**

There will be three term tests and a three-hour final exam. Students should refer to the Statement on Academic Ethics and the Senate Resolutions on Academic Dishonesty. The date and time for the final exam are to be scheduled by the Office of the Registrar. No calculators will be permitted in any term test and the final exam. The tentative term test schedule is:

- Test 1: October 2, 11:30 - 12:20 , Location: BSB B138
- Test 2: November 6, 11:30 - 12:20 , Location: BSB B138
- Test 3: November 27, 11:30 - 12:20 , Location: BSB B138

Each term test will receive a weight of 20%, and the final exam will receive a weight of 40%. If a student gets a higher marks in the final exam than the average marks of the three term tests and three assignments, the final exam will receive a weight of 80% and the three term tests will receive a total weight of 20%. A Student who misses a term test without a medical excuse will receive a grade of zero for that exam. If a student misses a term test with a medical excuse, the weight of that test will be moved forward onto the remaining test(s) and the final exam.

### **Academic Dishonesty**

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and 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 kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at <https://www.mcmaster.ca/academicintegrity/>. 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 other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

### **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.

### **Academic Accommodation of Students with Disabilities Language**

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail [sas@mcmaster.ca](mailto:sas@mcmaster.ca). For further information, consult McMaster University’s Academic Accommodation of Students with Disabilities policy.

## **Academic Accommodation for Religious, Indigenous or Spiritual Observances (Riso)**

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students requiring a RISO accommodation should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

## **Requests for Relief for Missed Academic Term Work McMaster Student Absence Form (MSAF)**

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”.

## **Extreme Circumstances**

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

## **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

## **Textbook**

“Fundamental Methods of Mathematical Economics” Alpha C. Chiang and Kevin Wainwright, 4th edition, McGraw Hill.

Available at the campus store:

[https://campusstore.mcmaster.ca/cgi-mcm/ws/txsub.plwsTERMG1=194&wsDEPTG1=ECON&wsCOURSEG1=3G03&wsSECTIONG1=DAY%20C01&crit\\_cnt=1](https://campusstore.mcmaster.ca/cgi-mcm/ws/txsub.plwsTERMG1=194&wsDEPTG1=ECON&wsCOURSEG1=3G03&wsSECTIONG1=DAY%20C01&crit_cnt=1)

## Schedule

- *Introduction*  
Equilibrium Analysis in Economics, Chapter 3.
- *Review of Linear Algebra*  
Linear Models and Matrix Algebra, Chapters 4 and 5.
- *Competitive Static Analysis*  
Comparative Statics and the Concept of Derivative, Chapter 6.  
Rules of Differentiation and Their Use in Comparative Statics, Chapter 7.  
Comparative-Static Analysis of General Function Models Chapter 8
- *Optimization Problems*  
Optimization: A Special Variety of Equilibrium Analysis, Chapter 9.  
Exponential and Logarithmic Functions, Chapter 10.  
The Case of More than One Choice Variable, Chapter 11.  
Optimization with Equality Constraints, Chapter 12.  
Further Topics in Optimization Chapter 13.
- *Dynamic Analysis (time permitting)*  
Economic Dynamics and Integral Calculus, Chapter 14.  
Continuous Time: First-Order Differential Equations, Chapter 15.  
Discrete Time: First-Order Difference Equations, Chapter 17.  
Simultaneous Differential Equations and Difference Equations, Chapter 19.