

**York University**  
**Faculty of Liberal Arts & Professional Studies**  
**Department of Economics**

**AP/ECON 1540 3.0 P**  
**Mathematics for Economists II**  
Winter 2024 Course Outline

**Course Instructor Contact:**

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Course Consultation Hours: By appointment (In-person or zoom meeting, Zoom connection information will be available through eclass)

Course Web Site: eclass

**Course Description (prerequisites/co-requisites):**

This course extends the analysis of basic Economics ideas, topics and problems begun in AP/ECON 1530 3.00. Again, relevant mathematical ideas and techniques are recalled and/or derived so as to provide a deeper understanding of Economic issues and how they can be resolved. The issues and problems covered require functions of more than one variable for their resolution. The notion of Quantity Supplied is combined with the notion of Quantity Demanded and notions of Market Equilibrium are introduced and discussed. Equilibria are evaluated through the introduction of mathematical notions and properties of systems of equations, eventually in matrix form. A deeper understanding of theories of demand (supply) and the foundations of demand (supply) functions is developed through the introduction of mathematical notions of unconstrained and constrained optimization and linear and nonlinear programming. As in AP/ECON 1530 3.0, many topics and issues are addressed and problem framing and problem solving abilities are enhanced.

**Prerequisite:** AP/ECON 1530 3.00 or equivalent.

**Prerequisites/Co-requisites:** AP/ECON 1000 3.00 or AP/ECON 1010 3.00, or equivalent. Note: No credit will be retained for this course for students who have successfully completed or who are currently enrolled in SC/MATH 1021 3.00, SC/MATH 1025 3.00, or SC/MATH 2221 3.00.

**Course credit exclusions:** SC/MATH 1505 6.00, SC/MATH 1540 3.00, SC/MATH 1550 6.00, GL/MATH/MODR 2650 3.00. Note: Acceptable course substitutes are available in the Calendar.

**Lecture Time and Location (In-person lectures, Records may not be available in principle)**

M 8:30am – 10:00 CLH M

W 8:30am – 10:00 DB0010

**Teaching Assistants: TBA**

**Organization of the Course**

This course involves formal lectures presented by the course instructor. The classroom technology will be used extensively, such as PowerPoint, or MS word format presentation. There will be extensive usages of the course web site. Reading assignments, practice problems, problem solving, etc., for each lecture session, tutorial sessions or TA availability, etc., will be announced on the course web site.

**Technical requirements for taking the course:**

This course is, in principle, a face-to-face lecture in a classroom. However, the Covid-19 situation is still ongoing, so online lecture deliveries can resume at any time, and some student consultations are expected to take place online. The technical features, a computer with microphone and webcam, and a high speed and reliable internet connection, and/or a smart device with these features, are required for students in order to fully participate in the course. There are some live information sessions including Q & A that may be conducted through Zoom video conferencing, where students are expected to participate. Also, students may be required to appear on video for exams/tests proctoring purposes. If you are not comfortable with these requirements, you should not enroll in this section of the course.

Students shall note the following:

- Zoom is hosted on servers in the U.S. This includes recordings done through Zoom.
- If you have privacy concerns about your data, provide only your first name or a nickname when you join a session.
- The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.

Here are some useful links for student computing information, resources and help:

[Student Guide to Moodle](#)

[Zoom@YorkU Best Practices](#)

[Zoom@YorkU User Reference Guide](#)

[Computing for Students Website](#)

[Student Guide to eLearning at York University](#)

To determine Internet connection and speed, there are online tests, such as [Speedtest](#), that can be run.

**Required Course Text/Readings:**

Knut Sydsaeter, Peter Hammond, Arne Strom, Andrés Carvajal, *Essential Mathematics for Economic Analysis*, 6/E, 2016 • Pearson.

**Evaluation \***

The grade for this course is composed of the mark received for each of the following components:

Type of Assessment	Percent/Weight		Date
	A	B	
Quizzes (Online)	10%	10%	TBA
Midterm Exam I (Classroom, 120 minutes)	Higher mark 30% Lower mark 10%	Higher mark 20%	<b>Feb 5(M), 7(W)</b>
Midterm Exam 2 (Classroom, 120 minutes)			<b>Mar 18(M), 20(W)</b>
Final Exam (Classroom, 180 minutes)	50%	70%	<b>April 10-26</b>
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	
	<b>Plus Bonus</b>		
<b>Course Grade = Max {A, B}</b>			

The following conversions will be used in converting percentage grades to letter grades:

90-100 (A+), 80-89 (A), 75-79 (B+), 70-74 (B), 65-69 (C+), 60-64 (C), 55-59 (D+), 50-54 (D), 40-49 (E), 0-39 (F).

**Please note that** I strongly believe that the best learning experiences occur when there is healthy attendance and discussions in the classroom. Therefore, I have a policy to give some bonus points based on **class attendance and participation (usually no more than 5%)** to encourage attendance and classroom discussion. Feel free to ask any questions or simply make comments on relevant topics at any time.

**Problem sets** will be posted in the course web site throughout the semester. Some of them may be solved in class. These problems will not be graded; however, I encourage you to work through them. It will help you understanding the course material and consequently, increase the probability that you will do well in the course. Practice may not always make perfect, but it's a good start.

**Quizzes: Online Open-book format**

I will post 3 short quizzes to eclass over the course of the semester. Each quiz is about one hour long and should be completed within the given 12 hours. The best 2 out of 3 quizzes will be counted in your grade. No makeup quizzes are available.

**No Makeup Midterm**

There are no makeups for missed midterm exams. Anyone missing one midterm exam will automatically have their final exam reweighted to be worth 70%.

**Requesting Deferred Final Exam**

Students will be required to complete a Mach form requesting a deferred exam. For complete instructions for using the Mach form, please go to our website:

<https://www.yorku.ca/laps/econ/undergraduate-programs/academic-resources/department-policies/deferred-standing/>

A student must submit the form within 5 business days from the final exam date.

**Tentative Sequence of Topics Covered and the Lecture Schedule**

<b>Session</b>	<b>Topics, Reading and Activity</b>
<b>01</b> Jan 8(M), 10(W)	Topics: Functions of Many Variables, Tools for Comparative Statics: <ul style="list-style-type: none"> <li>• Ch 14, 15</li> </ul>
<b>02</b> Jan 15(M), 17(W)	
<b>03</b> Jan 22(M), 24(W)	
<b>04</b> Jan 29(M), 31(W)	
<b>05</b> Feb 5(M), 7(W)	<b>Midterm 1</b> Drop Deadline: Mar 11
<b>06</b> Feb 12(M), 14(W)	Topics: Multivariable Optimization, Constrained Optimization <ul style="list-style-type: none"> <li>• Ch 17, 18</li> </ul>
Reading Week: Feb 17-23	
<b>07</b> Feb 26(M), 28(W)	Topics: Multivariable Optimization, Constrained Optimization <ul style="list-style-type: none"> <li>• Ch 17, 18</li> </ul>
<b>08</b> Mar 4(M), 6(W)	
<b>09</b> Mar 11(M), 13(W)	
<b>10</b> Mar 18(M), 20(W)	<b>Midterm 2</b>
<b>11</b> Mar 25(M), 27(W)	Topics: Matrix Theory, Linear Programming <ul style="list-style-type: none"> <li>• Ch 12, 13, 19</li> </ul>
<b>12</b> Apr 1(M), 3(W)	
<b>Final Exam</b>	<b>April 10-26</b>

**New Information and Changes:**

The schedule is subject to change –sometimes there are unexpected absences or we bog down on an issue. Check your class notes, or contact me for up-dated work schedules.

It may be very possible to make some adjustments of lectures and/or exams schedules. Students may also have handouts for the topics discussed in the class. It is students’ responsibility to be aware of any policy (or schedule change), or to collect handouts from classes. If you miss classes, contact the instructor before or immediate after, and check if there is any policy change or handout distributed.

**There is no excuse for not knowing course policies or schedule changes, or for not having handouts.**

## **Important Course Information for Students:**

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Curriculum & Academic Standards webpage;

<http://www.yorku.ca/secretariat/policies/index-policies.html/>

- York's Academic Honesty Policy and Procedures/Academic Integrity Website

**Academic Honesty and Integrity:** Conduct that violates the ethical or legal standards of the University community or of one's program or specialization is subject to severe penalties. Students are responsible for understanding the nature and consequences of these offences, as contained in the Senate Policy on Academic Honesty, found on the York University Senate WEB page: <http://www.yorku.ca/secretariat/policies/document.php?document=69>

- Ethics Review Process for research involving human participants

<http://www.yorku.ca/secretariat/policies/document.php?document=94>

- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities

<http://www.yorku.ca/secretariat/policies/document.php?document=68>

- Student Conduct Standards

<http://www.yorku.ca/oscr/standards.html>

- Religious Observance Accommodation

<https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs>