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

AP/ECON 1540 3.0 N
Mathematics for Economists II
Summer (S2) 2021
Course Outline

1. Course Instructor Contact:

Instructor: Vassilios Bardis
Email: vbardis@yorku.ca
Course website: on *eClass.yorku.ca* (*available* by *the first day of class*)
Class Times: MW 16:00-17:00

2. 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.

3. COURSE ORGANIZATION
(A) Content Delivery
The course content will be delivered *asynchronously* on the course website on Moodle using a combination of the following:
    (1) detailed notes/handouts
    (2) notes/handouts accompanied by pre-recorded short videos
    (3) pre-recorded video lectures
These will be posted weekly on the course website, mainly on the officially scheduled class dates. They will be complemented by practice sets which will also be posted approximately weekly and by the end of the week.

(B) Tests and Exams

The following apply to the tests and exams in the course:

- They will be based on (draw from) the material covered in (1), (2) and (3) above and draw from (but not be limited to) the questions in the practice sets.
- They will be available, take place and/or have to be submitted on the course website on **eclass**.
- All terms tests will be held and/or have to be submitted during the originally scheduled class times.
- The final exam will be held during the examination period on the date and times scheduled by the University (to be announced).

(C) Virtual Office Hours

Regular office hours will use Zoom and will be held each week. Zoom registration is required. The *times* and *registration link and instructions* will be available under "Virtual Office Hours" on the course website.

Please note:

1) all handouts and recordings should be used for educational purposes only and as a means for enhancing accessibility;

2) students *do not have permission to duplicate, copy and/or distribute the handouts, practice sets and recordings* outside of the class (these acts can violate not only copyright laws but also FIPPA); and

3) all recordings will be destroyed after the end of classes.

4. GRADING

The course grade will be based on **two term tests** and a **final exam.**

There are no deferred term tests. There will a deferred final exam for students who qualify (see below).

The course grade will be calculated as follows. Let H and L denote the highest and lowest of the two term test grades and X denote the final exam grade (each grade out of 100). Then the course grade, Y, will be

$$Y = \max (0.25\,H + 0.25\,L + 0.5\,X , .35\,H + .65\,X, 0.85X).$$

It follows from the above that

- the maximum weight of the term work is 50% and the minimum weight of the final exam is 50%.
- for students who complete both tests, the worst test will be ignored if it benefits the student.
- for students who complete only one of the two tests, the weight of the test is 35% and the final exam weight is 65%. (No penalty for not completing a single test due to technical issues or otherwise.)
- if both tests are *not* completed, then a grade of *zero* will be assigned to 15% of the course grade.
- the weight of the final exam cannot exceed 85%.

Term Work

Each test will have to be completed and/or submitted on the course website during the officially scheduled class times. The composition of each test will rely more heavily on the material covered in the four to five weeks preceding the date of the test.

The term test dates will be posted on the course website on the first week of classes.

Final Exam

The final exam will be comprehensive and will held during the examination period on the date and time scheduled by the University (to be announced). The opportunity to write a deferred exam will be available to students for whom a religious observance coincides with the date of the final exam or who are unable to complete the exam due to reasons beyond their control. If this applies to you, please email me to let me know. (*After* the date of the final exam, students who did not complete the final exam must request deferred standing by completing the required mach form. This information is available on the department website at https://www.yorku.ca/laps/econ/undergraduate-programs/academic-resources/department-policies/deferred-standing/

Reappraisal of Term Work: It is strongly recommended that reappraisal of students' term work should be completed during the course of the term and prior to the submission of final course grades.

Note on Senate Policy on Academic Honesty: Conduct that violates the ethical or legal standards of the University community or of one's program or specialization may result in serious consequences. Please familiarize yourself with the meaning of academic integrity by completing SPARK's [Academic Integrity module](#) at the beginning of the course. Breaches of academic integrity range from cheating to plagiarism (i.e., the improper crediting of another's work, the representation of another's ideas as your own, etc.). All instances of academic dishonesty in this course will be reported to the appropriate university authorities, and can be punishable according to the [Senate Policy on Academic Honesty](#).

5. USEFUL COMPUTING LINKS

Below are some useful links for computing information, resources and help:
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities: https://accessibility.students.yorku.ca/.
- [Student Guide to Moodle](#)
- [Zoom@YorkU Best Practices](#)
- [Zoom@YorkU User Reference Guide](#)
- [Computing for Students Website](#)
- [Student Guide to eLearning at York University](#)

6. SOME IMPORTANT DATES

Classes start / end	June 28 / Aug. 10
Reading Week	N/A
Examination Period	Aug. 12-19
Last date to add a course without/with permission of instructor	July 2 / July 9
Drop deadline: Last date to drop a course without receiving a grade	July 23
Course Withdrawal Period (withdraw from a course and receive a grade of "W" on transcript)	July 24 – Aug. 10
Holidays and University Closures:	July 1, August 2

7. COURSE TEXTBOOK (Optional but Strongly Recommended)

Essential Mathematics for Economic Analysis, fifth edition, Knut Sydsaeter and Peter Hammond with Arne Strom, Prentice Hall.

8. TOPICS TO BE COVERED (A detailed list of topics will be available on the course website.)

a. Functions of several variables
b. Multivariable optimization
c. Constrained optimization
d. Linear Algebra
e. Linear programming