Faculty of Liberal Arts & Professional Studies

Department of Economics

(Preliminary: Winter Term 2021)

Course: AP/ECON 1540 N – Introductory Mathematical Economics II

Course Website: TBA
Please check this regularly for problems sets, answers, past tests and exams, notes and announcements.

Term: Winter Term of Academic Year 2020-2021

Prerequisite / Co-requisite:

1. AP/ECON 1530 3.00 or equivalent
2. AP/ECON 1000 3.00 or AP/ECON 1010 3.00, or equivalent.

Course Credit Exclusions:

SC/MATH 1000 3.00, SC/MATH 1013 3.00, SC/MATH 1300 3.00, SC/MATH 1505 6.00, SC/MATH 1513 6.00, SC/MATH 1530 3.00, SC/MATH 1550 6.00, GL/MATH/MODR 1930 3.00.
Note: Acceptable course substitutes are available in the Calendar.

Course Instructor Contact

Name: Barry Smith
Office: 1078 Vari Hall
Phone: 647-454-2231 (accepts texts and phone calls)
Office Hours: TBA
Email: maecsta@yorku.ca

Time and Location

Lectures: MW 5:30-7:00 PM (ZOOM)

Teaching Assistant(s)

Name: Will be announced in class and posted to Moodle
Office:
Email:
Office hours:

Course Description

Details: 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 addressed using mathematical methods. The issues and problems covered require functions of more than one variable for their resolution. This course, combined with AP/ECON 1530 3.00, is meant to prepare students for the intermediate economic theory courses as well as statistics and econometrics courses. In particular, we will study functions of more than one variable and their properties, multivariate optimization and linear algebra. These mathematics topics will be related to the corresponding economics topics.

Learning Process: You are expected to attend virtual lectures and to solve the problems that are assigned each week. Your understanding of the course material will become deeper and broader the more you practise. You can't simply read mathematics and expect to understand or retain ideas or solve problems.

Course Text

Knut Sydsaeter, Peter Hammond, Arne Strom and Andres Carvajal. Essential Mathematics for Economic Analysis, Fifth Edition (ISBN 978129207461-0), Pearson. (An e-version is available as well. Please see the York University Bookstore for details.)

Weighting of Course Components

Midterm Test: Tuesday February 24, 2021 (during class time) 20%
Quizzes: TBA 20%
Final Exam During Final Exam Period: April 14-28, 2021 60% (set by Registrar)

Additional Information

The midterm test is optional. If you choose to write it, your midterm grade can count 25% towards your final course grade. If you write the term test and do you not like your grade, you can have the weight of the test added to the final exam. Warning! You should write the term test. Writing the test does not guarantee that you will pass the course. However, students who do not write the test tend to fail the course. It helps to prepare you for writing exams. There is no makeup midterm test.

Quizzes will occur in the term at randomly determined times. If you are present for the quiz (as measured by Zoom), you automatically get 1 of the 2 marks. The rest is determined by the quality of your answers. On days when the pop quizzes take place, nobody joining the Zoom session 5 or more minutes late will be allowed to submit quiz answers. If you miss a quiz, you get a grade of 0 for the quiz.

The final exam will be cumulative and will cover all materials discussed in class and the assigned problems. The date of the final exam will be scheduled by the Registrar's office. Students absent from the midterm test will automatically have their final exam determine 80% of the course grade. Students absent from the final exam will have to request a makeup exam. This makeup exam will take place only once.

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Tests and final exam grades will be numeric. They can be transformed to a letter grade using the following scale: A+ = 90 to 100, A = 80 to 89, B+ = 75 to 79, etc.

I will hold virtual office hours in addition to lectures. I will need your input to find the best time for the office hours.

Organization of the Virtual Course

The Zoom lectures and my virtual office hours will be recorded and stored so that you can access them. I have a variety of storage sites available. My preference would be to make everything available via eClass but I suspect I may send you URL's for so that you can download the information from Google storage sites.
During the Zoom sessions we need some form of communication mechanism between you and your classmates and between you and me. Unlike in a classroom setting, an online Zoom session can become very confused if everyone is able to ask questions at the same time. What I suggest is that you use the "chat" feature available in Zoom. You can send me a question and I will answer it, but perhaps with a short lag. I request that when you send a chat message, you send it to everyone. That way, we may reduce some duplication of questions. Within Zoom, when I look at the accumulated chat messages, they will be visible to everyone.
Regarding office hours, they will be recorded Zoom sessions that will be made available to you.

My Online Simulated Classroom

A standard classroom in which economics courses are taught or presented has 3 essential components: (1) the presenter (me) and the audience (you), (2) a list or summary of topics that will be covered in the lecture (usually appearing in an opened file projected to a screen in the classroom) and (3) one or more chalkboards where ideas are developed, presented and assessed by the instructor and students. In mathematics, statistics, and economics it is not sufficient simply to read about ideas and results. In order to learn you need to experiment and interact with theories and models and you do that with a pencil and paper. Part of the lecture process involves showing how to experiment and interact by using a chalkboard. In short, you learn how to actually **do** mathematics, statistics and economics by watching me present ideas and work through example problems for you.

In my opinion, if online learning is to succeed in mathematics, statistics and economics it must find a way to reproduce the interactive learning experience that arises in a classroom. The best that I can do, given the technology that I know about and that is available to me, is to provide you with a simulated or virtual classroom. Zoom captures my computer screen and my audio feed and transmits it to you. My screen will contain several things. First, you will see the continuous feed of a camera that is focused on me. The image is small but sometimes there is something to be learned in actually watching someone present an idea or tell a story. Second, during a lecture I will open a sequence of pdf files in a separate part of the screen. These files will contain information that is available to you at the storage site. Third, the Zoom screen that you see will contain my virtual chalkboard. This part of my computer screen will show the output coming from a tablet computer that also sits on my desk. The tablet computer is connected interactively with my main computer and my computer screen. A friend wrote the software that allows me to connect to the tablet computer and anything that appears on the tablet computer screen is mapped onto my main computer screen. What you see on my screen will look like two

lined pads of paper. These are the screens of the tablet computers when they run a piece of software called Squid. It is possible to write, print and draw on a tablet computer screen. What I write on the tablet (in a variety of selected colours) will be exactly reproduced on my computer screen. I even have a virtual eraser! The pads of paper are virtual so that I can move forwards and backwards through what I have written. The virtual chalkboard is helpful in the sense that you can see how results are derived. There is a very short lag (milliseconds) in what I write and what appears on the screen. You won't notice that. What you might note is that my writing/printing is not perfectly smooth. This is a result of the software in the tablet sensing and translating the physical location of my pen (stylus) on its screen and how that location changes as I write/print.

One important drawback of online teaching is that I cannot "read" the class as I would in a regular lecture hall. In particular, I can't scan the faces of students in a virtual class room in the same way that I can in a regular class room and figure out, in real time, if my message is getting through. As well, the virtual class will have a about 155 students and complications can arise when everyone's microphone is open at the same time. We'll sort it out.

Topics Outline Circulated Separately

Important Course Information for Students

Important Dates:

- January 11, 2021 Courses start
- January 25, 2021 Last day to enroll without permission of instructor
- February 8, 2021 Last day to enroll with permission of instructor
- February 13-19, 2021 Winter Reading Week (No classes, University is open)
- March 12, 2021 Last day to drop course without a grade
- March 13 – April 12, 2021 Voluntary drop period, grade of W on transcript
- April 12, 2021 Classes end
- April 13, 2021 Winter Study day
- April 14-28, 2021 Fall exam period. Exams dates are set by the Registrar. Special exam dates cannot be set by the instructor. Do not pre-book travel that could conflict with the final exam date.

Other Important Information:

The Senate Committee on Curriculum & Academic Standards (CCAS) provides a Student Information Sheet that includes:

- *York's Academic Honesty Policy and Procedures / Academic Integrity Web site*
- *Access/Disability*
- *Religious Observance Accommodation*
- *Student Code of Conduct*

Additional information:

- *Academic Accommodation for Students with Disabilities*
- *Alternate Exam and Test Scheduling*
- *Grading Scheme and Feedback Policy*

  The Senate Grading Scheme and Feedback Policy stipulates that (a) the grading scheme (i.e. kinds and weights of assignments, essays, exams, etc.) be announced, and be available in writing, within the first two weeks of class, and that, (b) under normal circumstances, graded feedback worth at least 15% of the final grade for Fall, Winter or Summer Term, and 30% for 'full year' courses offered in the Fall/Winter Term be received by students in all courses prior to the final withdrawal date from a course without receiving a grade. Final course grades may be adjusted to conform to Program or Faculty grade distribution profiles.