

Faculty Liberal Arts and Professional Studies Department of Economics

Course: AP/ECON1530 A 3.0 **Course_Webpage:** <https://moodle.yorku.ca/> and log in

Term: S1 2020

Prerequisite / Co-requisite:

1. Grade 12U Advanced Functions or equivalent.
2. AP/ECON 1000 3.00 or AP/ECON 1010 3.00, or equivalent. Strongly recommended completion: high-school calculus 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

Name: Prof. Ying KONG
Email: ykong@yorku.ca (email is the preferred contact method)
Virtual office hours: Monday, 7:00-7:30pm after lecture time
Wednesday, 7:00-7:30pm after lecture time

TA: TBA
Office hours: TBA
Email: TBA

Technical requirements for taking the course

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

[Student Guide to Moodle \(https://thelp.yorku.ca/student-guide-to-moodle\)](https://thelp.yorku.ca/student-guide-to-moodle)
[Zoom@YorkU Best Practices \(https://staff.computing.yorku.ca/wp-content/uploads/sites/3/2020/03/Zoom@YorkU-Best-Practicesv2.pdf\)](https://staff.computing.yorku.ca/wp-content/uploads/sites/3/2020/03/Zoom@YorkU-Best-Practicesv2.pdf)
[Zoom@YorkU User Reference Guide \(http://staff.computing.yorku.ca/wp-content/uploads/sites/3/2012/02/Zoom@YorkU-User-Reference-Guide.pdf\)](http://staff.computing.yorku.ca/wp-content/uploads/sites/3/2012/02/Zoom@YorkU-User-Reference-Guide.pdf)
[Computing for Students Website \(https://student.computing.yorku.ca/\)](https://student.computing.yorku.ca/)
[Student Guide to eLearning at York University \(http://elearning-guide.apps01.yorku.ca\)](http://elearning-guide.apps01.yorku.ca)

Class Time and Location

Lectures Monday & Wednesday 4pm-7pm **ZOOM online**

* **Important:** Please note that this is a course that depends on remote teaching and learning. There will be no in-person interactions or activities on campus. Technical requirements for taking the course are provided on the course web of Moodle

Organization of the Course

The entire course, including the participation/discussion and test-taking, will take place on the course's Moodle. The course has both synchronous and asynchronous elements. The lecture materials are first delivered synchronously during the lecture time through ZOOM. The class notes will be posted on our Moodle web each week for students to review the lecture materials especially for the students who could not attend ZOOM online lecture to study the course. Although we are scheduled to meet at scheduled class times and days of the week, this course has no live virtual meetings outside of lecture hours. Like an online course, you can learn the course material at your own pace through the textbook and class notes, following the syllabus of the course.

Several platforms will be used in this course (e.g., Moodle, Canvas, Zoom, etc.) through which students will interact with the course materials, the course director / TA, as well as with one another. Please review the syllabus to determine how the class meets (in whole or in part), and how office hours and presentations will be conducted.

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.

Technology requirements and FAQs for Moodle can be found here - <http://www.yorku.ca/moodle/students/faq/index.html>

Course Description

Overview: This course introduces and develops topics in differential calculus, integral calculus, and their applications in economics. Topics will include a review of algebra, linear equations, quadratics, general functions of one variable, continuity, limits and derivatives of single-variable functions, series, exponential and logarithmic functions, single-variable optimization and integration. Applications to topics in economics will include (but not be limited to) supply and demand functions, maximization of revenue and profits and elasticity of demand and supply.

Details: Economists are interested in microeconomic models of the behavior of agents (demanders and suppliers) in individual markets. Economists are also interested in macroeconomic models of aggregated markets and total consumption, investment and government spending as well as interest rates, exchange rates and money supply. This interest manifests itself at both a theoretical and empirical level. In all cases it is important that economists describe their areas of interest, their models and their results in a precise manner. The natural way to do this is to write models and study their properties using a language or languages that are rich and precise and which are used by most economists in the profession. These languages are mathematics and statistics. Our goal in this course is to review and develop the mathematics needed for you to be able to both understand the statement of economic models and for you to analyze and derive properties of economic models.

Learning Process: You are expected to attend online 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 practice. You can't simply read mathematics and expect to understand or retain ideas or solve problems.

Course Text / Readings

Knut Sydsaeter and Peter Hammond, *Essential Mathematics for Economic Analysis*, Fifth Edition (ISBN 9781292074719), Pearson.

Lectures, although based mainly on the textbook, will include additional or alternative materials. Some sections in the textbook may not be covered in the class. Where indicated in the outline, in class lecture notes which are posted on Moodle course web will be the basic source for your study.

Syllabus

Please review Chapter 1 on your own. The topics that will be covered in class are as follows:

1. *Review of Algebra, Chapter 2.*
 - Real Numbers, Section 2.1
 - Integer Powers, Section 2.2
 - Rules of Algebra, Section 2.3
 - Fractions, Section 2.4
 - Fractional Powers, Section 2.5
 - Single and Double Inequalities, Section 2.6
 - Intervals and Absolute Values, Section 2.7

2. *Equations, Chapter 3.*
 - How to Solve Simple Equations, Section 3.1
 - Equations with Parameters, Section 3.2
 - Quadratic Equations, Section 3.3
 - Linear Equations in Two Unknowns, Section 3.6
 - Nonlinear Equations, Section 3.4

3. *Functions of One Variable, Chapter 4.*
 - Introduction, Section 4.1
 - Basic Definitions, Section 4.2
 - Graphs and Functions, Sections 4.3
 - Linear Functions, Sections 4.4
 - Linear Models, Section 4.5
 - Quadratic Functions, Section 4.6
 - Power Functions and Polynomials, Sections 4.7-4.8

4. *Differentiation, Chapter 6.*
 - Slopes of Curves, Section 6.1

- Tangents and Derivatives, Section 6.2
 - Increasing and Decreasing Functions, Section 6.3
 - Rates of Change, Section 6.4
 - A Dash of Limits, Section 6.5
 - Simple Rules for Differentiation, Section 6.6
 - Sums, Products, and Quotients, Section 6.7
 - Chain Rule, Section 6.8 & Chapter 5, Section 5.2
 - Higher-Order Derivatives, Section 6.9
5. *Derivatives in Use, Chapter 7.*
- Implicit Differentiation, Section 7.1
 - Economic Examples, Section 7.2
 - Differentiating the Inverse, Section 7.3 & Chapter 5, Section 5.3
 - The Differential of a Function and Approximation Section 7.4
 - Why Economists Use Elasticities, Section 7.7
6. *Limits, Continuity, Series and L'Hopital*
- Continuity Chapter 7, Section 7.8
 - More on Limits Chapter 7, Section 7.9
 - Infinite Sequences and Geometric Series Chapter 7, Section 7.9, Chapter 10, Section 10.4
 - Exponential Functions, Section 6.10 & Chapter 4, Section 4.9
 - Logarithmic Functions, Section 6.11 & Chapter 4, Section 4.10
 - Present Value Chapter 10, Section 10.3
 - L'Hopital's Rule Chapter 7, Section 7.12
7. *Single-Variable Optimization, Chapter 8.*
- Introduction, Section 8.1
 - Simple Tests for Extreme Points, Section 8.2
 - Economic Example, Section 8.3
 - The Extreme Value Theorem Section 8.4
 - Further Economic Examples, Section 8.5
 - Local Extreme Points, Section 8.6
 - Inflection Points Convexity and Concavity, Section 8.7
 - Present Value, Chapter 10, Section 10.3
8. *Integration, Chapter 9*
- Indefinite Integrals, Section 9.1
 - Area and Definite Integrals, Section 9.2
 - Properties of Definite Integrals, Section 9.3
 - Economic Applications, Section 9.4
 - Integration by Parts, Section 9.5
 - Integration by Substitution, Section 9.6
 - Integration over Infinite Intervals 9.7

Weighting of Course Components

Midterm Test: Monday June 1, 2020 (online test during class time), weight 40%.

Final Exam: During Final Exam Period: June 24-26, 2020, weight 60%

The final exam will be cumulative and will cover all materials discussed in class and the assigned problems and assignments. The date of the final exam will be scheduled by the Registrar's office.

Grading and Missed Tests

Grading: 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.

Missed Tests: There are no deferred tests or exams. Students absent from the midterm test will automatically have their final exam determine 100% of the course grade. Students absent from the final exam will have to petition to the Faculty of Liberal Arts and Professional Studies (or their own faculty if they are not LAPS students) for a makeup exam.

To prepare exam and familiar to the materials that we discussed in the class, I strongly encourage students to try your best to practice questions at end of each sections and chapter.

Important Course Information (<https://registrar.yorku.ca/enrol/dates/su20>)

Important Dates

- May 11, 2020 Courses start
- May 15, 2020 Last day to enroll without permission of instructor
- May 26, 2020 Last day to enroll with permission of instructor
- June 8, 2020 Last date to drop course without receiving a grade
- June 9-June 22, 2020 Course Withdrawal Period
(withdraw from course and receive a "W" on transcript – see Add and Drop Deadline Information below)
- June 22, 2020 Classes end
- June 23, 2020 Study day
- June 24-26, 2020 S1 term exam period. Exams dates are set by the Registrar. Special exam dates cannot be set by the instructor. If you pre-book travel at a time that turns out to conflict with the final exam time and date, you are taking a gamble. If you win, you get lower travel costs. If you lose, a travel conflict is not recognized as grounds to petition for a makeup exam.

Add and Drop Deadline Information

Since, for the most part, the dates are **different**, be sure to read the information carefully so that you understand the differences between the sessional dates below and the [Refund Tables](#) provided in the web of <https://registrar.yorku.ca/enrol/dates/su20>.

You are strongly advised to pay close attention to the "Last date to enroll without permission of course instructor" deadlines. After that date, you must contact the professor/department offering the course to arrange permission.

You can drop courses using the registration and enrolment system up until the last date to drop a course without receiving a grade (drop deadline). You may [withdraw from a course](#) using the registration and enrolment system after the drop deadline until the last day of class for the term associated with the course. When you withdraw from a course, the course remains on your transcript without a grade and is notated as "W". The withdrawal will not affect your grade point average or count towards the credits required for your degree.

Other Important Information:

Academic honesty and integrity

In this course, we strive to maintain academic integrity to the highest extent possible. 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.

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.

- **"20% Rule"**

No examinations or tests collectively worth more than 20% of the final grade in a course will be given during the final 14 calendar days of classes in a term. The exceptions to the rule are classes which regularly meet Friday evenings or on

Saturday and/or Sunday at any time, and courses offered in the compressed summer terms.

- Final course grades may be adjusted to conform to Program or Faculty grade distribution profiles.