MATH 1009*E Fall 2021 Course Outline

Mathematics for Business

Last updated: August 26, 2021.

Instructor: Dr. Elena Devdariani
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Office hours: ONLINE by appointment.

Textbook: "Mathematics for Business and Economics", by E. Devdariani. The textbook is in electronic format and is available at the Campus Bookstore. It may also be purchased at the Vitalsource website (https://www.vitalsource.com/en-ca/) by searching for the ISBN number 9781774942581, or the book title, or "Elena Devdariani".

Lectures: begin on Wednesday, September 8, and then each Monday & Wednesday, 11:35 am - 12:55 pm, ONLINE, asynchronously, posted on Brightspace. Lectures end on December 8.

Tutorials: begin on September 22, each Wednesday 1:35 pm - 2:25 pm. Group E1 - live in-person, in Tory Building, room 236; Groups EW - live ONLINE. Further instructions will be emailed to the students closer to the date of the first tutorial. The class is subdivided into the tutorial groups alphabetically, according to the last names, as follows: TBA

Evaluation:

(1) Term Mark 60% (4 tests, 3 best count)

(2) Final Examination 40%.

Term mark : There will be four "open book" tests online in the regular tutorial hours: on **September 29, October 13, November 3, November 24**. Further instructions will be provided a week prior to the date of each test.

Students are expected to take all four test. The best three will be counted. There will be **ABSOLUTELY NO** make-up tests as we do not have the resources to provide such tests. The lack of resources is the reason why the students are allowed to miss one test without penalty. **The instructor will not answer any emails from the students asking about the possibilities of make-up tests**. In case when a student misses **more than one** test due to illness (supported by a doctor note) jury duty or extreme personal misfortune, the term mark may be pro-rated.

Final Examination: This is a 2-hour "open book" exam scheduled by the University. The exam is taking place during the period of December 11 to 23 (including Saturdays and Sundays). It is each student's responsibility to be available at the time of the examination. It is each student's responsibility to find out the correct date and time of the exam. To pass this course, a student must obtain at least 50% of total and at least 30% of the final exam mark.
Students who missed the examination may be eligible for a deferred exam, provided that they present a doctor note or another supporting document to the Registrar's Office. It is the Registrar's Office (not the course Instructor!) which makes the decision of granting a deferred examination. After the deferred exam is written, all questions should be directed to the School of Mathematics and Statistics and not to the Instructor.

Calculators: Calculators are allowed for tests and the exam.

Homework: Students are expected to do every exercise from the textbook. These exercises are not to be handed in and will not be graded. However, in order to succeed in the course, it is **absolutely essential** to do the exercises on a regular basis.

List of topics:

Review of Numbers (Ch 1)
1.1. Natural, Integral and Rational Numbers.
1.2. Decimals. Percentages.
1.3. Irrational and Real Numbers.

Review of Basic Algebra (Ch 2)
2.1. Algebraic Expressions. Order of Operations.
2.2. Algebraic Operations with Polynomials.
2.3. Factoring.
2.4. Roots and Radicals.
2.5. Complex Numbers.

Linear Equations and Inequalities (Ch 3)
3.1. Linear Equations and Inequalities in one variable.
3.2. Linear Equations in Two Variables and Their Graphs.
3.3. Systems of Linear Equations in Two and Three Variables.
3.4. Linear Inequalities in Three Variables and Their Graphs. Systems of Linear Inequalities.

Quadratic and Rational Expressions (Ch 4)
4.1. Solving Quadratic Equations by the Square Root Property.
4.2. Solving Quadratic Equations by Completing the Square.
4.3. Quadratic Formula. Factoring Quadratic Polynomials.
4.4. Algebraic Operations on Rational Expressions.

Functions (Ch 5)
5.1. Definition of a Function. Domain, Range, Graph.
5.2. Algebra of Functions.
5.3. Polynomial and Rational Functions.
5.4. Power Functions. Transformation of Graphs.
5.5. Exponential and Logarithmic Functions. Inverse Relations.
5.6. Applications: Simple and Compound Interest.

Introduction to Limits and Derivatives (Ch 6)
6.1 The Limit of a Function at a Point.
6.2 Properties of Limits. Limits at Infinity.
6.3 The Derivative.
6.4 Basic Rules of Differentiation.

Sequences and Series (Ch 7)
7.1. Sequences. Arithmetic Sequences.
7.2. Series. Arithmetic Series.
7.3. Geometric Sequences and Series. Application: Annuities

Academic Accommodation: You may need special arrangements to meet your academic obligations during the term because of disability, pregnancy or religious obligations. You can visit the Equity Services web site to view the policies and to obtain more detailed information on academic accommodation at http://carleton.ca/equity/accommodation

Academic Accommodations for Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable).

Plagiarism: The University Academic Integrity Policy defines plagiarism as "presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one's own." This includes reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to: books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, art works, laboratory reports, research results, calculations and the

results of calculations, diagrams, constructions, computer reports, computer code/software, material on the internet and/or conversations. Examples of plagiarism include, but are not limited to: any submission prepared in whole or in part, by someone else; using ideas or direct, verbatim quotations, paraphrased material, algorithms, formulae, scientific or mathematical concepts, or ideas without appropriate acknowledgment in any academic assignment; using another's data or research findings without appropriate acknowledgement; submitting a computer program developed in whole or in part by someone else, with or without modifications, as one's own; and failing to acknowledge sources through the use of proper citations when using another's work and/or failing to use quotations marks.

Plagiarism is a serious offence that cannot be resolved directly by the course's instructor. **The Associate Dean of the Faculty conducts a rigorous investigation**, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course or even suspension or expulsion from the University.