

ECON 1401B

Elementary Mathematics for Economics I

Winter 2026

Instructor: Jiankang Zhang	Classes:
Office: D887 Loeb Building	Tuesdays 11:35-12:55 (Lecture)
Phone: 613-520-2600 ext. 3774	Thursday 11:35-12:55 (Lecture)
jiankangzhang@cunet.carleton.ca	Fridays 12:35-13:25 (Tutorial)
TA: TBA	Office Hours: 16:10-17:40 (Wednesdays or by appointment)

Log into Carleton Central to view the locations on your timetable

Welcome to ECON 1401: Elementary Mathematics for Economics I.

Course Description: The course will be delivered in person. Topics covered include linear and non-linear functions and models (including cost, revenue, profit, demand and supply), matrices, and mathematics of finance and growth (including simple and compound interest: annuities, mortgages, loans). Graphing economic magnitudes: scatter diagrams, time-series graphs, functional relationships. Applied algebra: solving systems of linear equations and Keynesian national-income analysis.

Learning Outcomes: The course is designed to provide students with elementary mathematical tools required for basic economic analysis. The emphasis is not only on mathematics but also on its applications to economics.

Preclusions and Prerequisites: Ontario Grade-12 U Advanced Functions, or ECON 0005 with a minimum grade of C- or higher, or MATH 0005 with a minimum grade of C- or higher, or equivalent; and ECON 1001 or ECON 1000 or FYSM 1003, which may be taken concurrently with ECON 1401. Students who believe they have taken a similar background course or courses from another university should provide appropriate documentation to the Department of Economics Undergraduate Administrator: economics@carleton.ca to check that credit may be given for all courses.

Precludes additional credit for BIT 1000, BIT 1001, BIT 1100, BIT 1101, BIT 1200, BIT 1201, MATH 1007, MATH 1009, MATH 1104, MATH 1107, MATH 1119, MATH 1052, MATH 1152.

The course consists of lectures three hours a week, tutorials one hour a week.

Textbook

The required textbook for the course is:

Maths for Economics, 5th edition By Geoff Renshaw, Oxford University Press

\$105.75, Carleton bookstore

Course Content

- Topic I: Foundations
 - Chapter 3: Linear equations
 - Chapter 4: Quadratic equations
 - Chapter 5: Some further equations and techniques
- Topic II: Multivariable Algebra
 - Chapter 19: Matrix algebra
- Topic III: Mathematics of Finance and Growth
 - Chapter 10: Compound growth and present discounted value
 - Chapter 11: The exponential function and logarithms
 - Chapter 12: Continuous growth and the natural exponential function
 - Chapter 13: Derivatives of exponential and logarithmic functions and their applications
- Topic IV: Some Further Topics
 - Chapter 20: Difference and differential equations

Grading Scheme

- The final grade will consist of the following elements weighted as shown:
 1. Three in-class midterm exams 15%, 20%, 25%, respectively
 2. Final exam 40%
- **The pattern of the four exams is:** Midterm I will be the easiest, and the final exam will be the hardest, Midterm II will be harder than Midterm I, and Midterm III will be harder than Midterm II.
- The first midterm examination will be held after finishing Chapter 3. The date could be in week 4 or after.
 The second midterm examination will be held after finishing Chapter 5 and will just cover Chapters 4 and 5. The date could be in week 6 or after.
 The third midterm examination will be held after finishing Chapter 19 and will just cover Chapter 19. The date could be in week 8 or after.
- The exact dates for the midterms will be announced in advance.
- There will be no deferred mid-term exams. If you miss a midterm exam due to an emergency or illness and submit [Academic Consideration for Coursework Form](#) online (which will be sent to me within 1 business day from the Registrar's Office) **before the midterm takes place**, the assigned weight will be added to the final exam. Otherwise you will receive zero marks for it.
- For students who have submitted [Academic Consideration for Coursework Form](#) **before midterms**, a maximum of one missed midterm is permitted. As a result, a maximum weight of 65% will be given to the final examination. DEF(erred final grade) status at the end of this course precludes (continued) registration in any other course for which the former is a prerequisite.
- All the midterms and the final are **closed** book examinations and students are **not allowed** to bring in any materials.
- All the midterms and the final will be **in person**.

- Write all the examinations except the final exam in **PEN ONLY**.
- The final exam will be **cumulative** and cover the **entirety** of the course material.
- The final examination will be a three-hour in-person examination, scheduled by the Scheduling Office.
- **Deferred Finals:** Students who do not write the final examination because of illness or other circumstances beyond their control may apply for to write a deferred final examination by contacting the [Registrar's Office](#) no later than three working days after the original final examination was scheduled. In the event that a student writes a deferred examination, the deferred examination will carry the same weight as the final examination in determining the course grade. Any deferred examination will not be identical to the original final examination.
Deferred finals (which must be applied for at the [RO](#)) are only available if the student is in good standing in the course, so if there is a minimum standard a student must meet in order to be in good standing, and entitled to write a deferred final exam, this standard must be stipulated here.

Satisfactory Performance Criteria: Students must fulfil all of the preceding course requirements in order to achieve a passing grade (D- or higher). Failure to write the final examination when the student has achieved satisfactory performance during the term will result in a grade of 'F' until an appeal to write the deferred final exam in May 2026, if granted by the Registrar's Office. A change of grade will be submitted when the deferred final exam has been written and the marks are available. See Academic Regulation 2.3 for the official meanings of the grades, and note that it stipulates that no course grades are final until approved by the Faculty Dean. Application to write a deferred final examination must be made at the Registrar's Office in writing no later than three working days after the original final examination was scheduled.

Tutorial Groups: Weekly tutorials will be conducted. The TA will show the students the applications of concepts and theories presented in classes step by step by using some examples.

Practice Problems: Students are encouraged to work through as many textbook problems as possible, since these are the best way to learn the course and prepare for the exams as well. Moreover, I will provide four sets of practice problems.

Brightspace and the Carleton email system will be used extensively as a means of communication with students. Therefore, students are strongly advised to access Brightspace and check their Carleton email at regular intervals in order to check for new information. To access Brightspace and the Carleton email system, students require a MyCarletonOne account. For questions about MyCarletonOne accounts, students should access <http://carleton.ca/ccs/get-started/> (and then click on either New Students or New Grad Students, as appropriate) or contact the ITS Service Desk (4th Floor, MacOdrum Library, telephone: 613-520-3700).

Plagiarism: You are responsible for reading and knowing the information about plagiarism, Carleton University resources, and academic accommodations found [HERE](#). Use of ChatGPT and other generative AI is prohibited.

Requests for Academic Accommodation: You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation: Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wpcontent/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation: Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities: If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made carleton.ca/pmc.

**If you have any problems and questions, please do not hesitate
to ask me for help.**