

ENGG*6405 - Finance and Economics for Engineers

Summer 2025 Course Outline

Section: 01

Credits: 0.50

Land Acknowledgement: Guelph

The University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer respect to our Anishinaabe, Haudenosaunee and Métis neighbours. Today, this gathering place is home to many First Nations, Inuit, and Métis peoples and acknowledging them reminds us of our important connection to this land where we work and learn.

Calendar Description

This course is designed to develop the fundamental and applied knowledge needed to understand the pillars of sustainability and local/global order. It covers topics in economic systems, finance, investments, risk, law, human behaviour, economic development, economic cycles, monetary policy, trade, and externalities of the economy (society, environment, and ecology).

Department(s): School of Engineering

Course Description

Finance and Economics for Engineers is a graduate course designed to develop the fundamental and applied knowledge needed to understand the pillars of sustainability and local/global order. The course discusses various economic systems that are commonly used to create order within and across national borders. The course discusses concepts in finance, theories of the firm, law, investments, risk, investment strategies, and human behavior. The course introduces various theories of economic development, economic cycles, and monetary policy. The course discusses international integration, trade, and macroeconomics, which shape the global order structure. The course investigates the externalities of the economy, which are society, environment, and ecology. It provides methodologies to ensure economic growth while mitigating potential destructive impacts on society, environment, and ecology. These are known as welfare economics, environmental economics, and ecological economics.

Lecture Schedule

MonWed 2:30pm-5:20pm in THRN*1307 (5/8 to 6/27)

Instructor Information

Amir A. Aliabadi, Ph.D., P.Eng.

Associate Professor

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Office: RICH 2515

Office Hours:

To Be Determined (TBD)

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Textbooks

Group	Title	Author	ISBN
Required	Finance, Economics, and Externalities: A Fundamental Approach	Amir A. Aliabadi	978-1-7751916-5-0

Learning Resources

Required Resources

Aliabadi, A. A. (2025), 'Finance, Economics, and Externalities: A Fundamental Approach', Amir A. Aliabadi Publications, Guelph, ISBN: 978-1-7751916-5-0.

Students are required to purchase the hard copy of the textbook from the UofG Bookstore. The official hard copy is required for open book term tests 1 and 2. All photocopies and illegitimate copies of the textbook will be removed at term tests 1 and 2.

<https://www.bookstore.uoguelph.ca/> The hard copy textbook can be purchased from the University of Guelph Bookstore. There is no soft copy for the textbook. MacNaughton Building - 50 Stone Rd - Guelph, Ontario - N1G 2W1 Phone: (519) 824 4120 Ext 53715

Course Resources

Students are required to regularly check the information content on Course link (Website) (<https://courselink.uoguelph.ca/>)

Campus Resources

If you are concerned about any aspect of your academic program: Make an appointment with a Program Counsellor (<https://www.uoguelph.ca/uaic/programcounsellors/>) in your degree program. If you are struggling to succeed academically: There are numerous academic resources offered by the Learning Commons (<https://www.lib.uoguelph.ca/using-library/spaces/learning-commons/>) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills.

Cost of Textbooks and Learning Resources

Textbook / Learning Resource	Required / Recommended	Cost
Textbook	Required	\$40

Students are advised that prices are often determined by the publisher or bookstore and may be subject to change.

Course Learning Outcomes

1. Independent Inquiry and Analysis: use historical financial data using python programming to perform statistical analysis of investment returns for financial assets.
2. Problem Solving: use historical financial data and python programming to design and optimize investment portfolios using the modern portfolio theory.
3. Global Understanding: understand the over-arching principles in Finance and Economics.
4. Sense of Historical Development: understand topics in finance and historical development capital markets.
5. Intercultural Competence: understand topics in various economic systems in use by different nations.
6. Written Communication: investigate and report the externalities of the economy (economy, society, and environment) and ways to ensure economic development while protecting such externalities.

Course Level Learning Outcomes

Independent inquiry and analysis (5.1)

Problem solving (5.2)

Global understanding (2.1)

Sense of historical development (2.2)

Intercultural competence (2.4)

Written communication (3.2)

Schedule of Topics and Assignments

Day	Date:	Topic	Activities	Due
Mon	5/12	Economic Systems and Time Value of Money		

Wed	5/14	Statistics	In Class Quiz 1
Mon	5/19	Holiday - No Classes Scheduled	
Wed	5/21	Financial Assets and Financial Markets	In Class Quiz 2 Computer Assignment 1 (May 25, 2025)
Mon	5/26	Theories of the Firm and Financial Statements	In Class Quiz 3
Wed	5/28	Law and Finance	In Class Quiz 4
Mon	6/2	Performance Metrics, Asset Pricing, and Behavioral Finance	In Class Quiz 5
Wed	6/4	Portfolio Theory and Risk	In Class Quiz 6 Computer Assignment 2 (June 8, 2025)
Mon	6/9	Investment Strategies	In Class Quiz 7
Wed	6/11	Term Test 1 (In Class)	
Mon	6/16	Economic Development, Economic Cycles, and Monetary Policy	In Class Quiz 8
Wed	6/18	Externalities: Society, Environment, and Ecology	In Class Quiz 9 Project (June 22, 2025)
Mon	6/23	International Integration and Trade Policy	In Class Quiz 10
Wed	6/25	Term Test 2 (In Class)	

Assessment Breakdown

In Class Quizzes - 10% - Every Lecture (Learning Outcome 2.1)

Assignment 1 - 20% - May 25, 2025 (Learning Outcome 5.1)

Assignment 2 - 20% - June 8, 2025 (Learning Outcome 5.2)

Project - 10% - June 22, 2025 (Learning Outcome 3.2)

Term Test 1 - 20% - June 11, 2025 (Learning Outcome 2.2)

Term Test 2 - 20% - June 25, 2025 (Learning Outcome 2.4)

Concept quizzes will be administered at the beginning of each class. These quizzes ensure that students keep up with the reading material. Each quiz contains one multiple choice question to test student's knowledge of the over-arching principles in Finance and Economics. The quiz question will be demonstrated in class and students register their responses on the CourseLink quiz tool.

Computer assignments will be due at specified dates and times. In these assignments, financial data should be analyzed using python programming. A report should be submitted on CourseLink dropbox summarizing the analysis, providing the results in visual and tabular form, providing discussions in response to questions in the assignments, and providing the completed scripts in the appendix of the report. The report should be submitted as a single file, preferably in PDF format. Please DO NOT submit your python code in python format. Instead, you are required to copy and paste the script of your python code in the assignment submission in PDF format.

The project requires students to write a critical review essay about a topic relevant to the course. A list of topics will be shared with students, and their groups will choose and confirm a topic with the instructor. The topics will be picked and confirmed on a first come first serve basis. The critical review essay should be no more than 2 pages long (excluding references, figures, and tables), single line spacing using Times New Roman font size 12. The essay should cite 3 to 5 legitimate academic references. Legitimate references are ONLY 1) peer reviewed and indexed journal articles and 2) published books with publisher's information including address and year of publication. Illegitimate references are NOT permitted; these are online materials, websites, non-peer reviewed and non-indexed journals, popular periodicals, etc. Students should NOT use AI tools to write the essay. The essay content should go BEYOND the content in the course textbook. In another word, students should not use the course textbook as reference, but rather they should find new information to extend their knowledge beyond the course material. They are only permitted to use such tools for spell checking and grammar corrections. Students should submit their essay into CourseLink dropbox in both MS Word and PDF formats.

Late submissions will be assessed but with a 20% mark penalty if submitted within 48 hours of the due date and time. Assignments and project report will not be accepted more than 48 hours after the date and time they are due.

Student submissions may be analyzed using TurnItIn software, or other tools to identify non-original work. All students must submit their own, original writing.

Two term tests will be administered in class (during lecture hours). Your primary opportunity to practice for the term tests is to attempt the problems provided in the text. These tests are open text, but only the legitimate hard copy of the textbook is permitted. All non-original copies of text or other printed material will be removed. No electronic devices are permitted, except for a non-programmable scientific calculator. Students are not permitted to share a textbook during the test (i.e. each student should use their own textbook).

If students miss a test due to grounds for granting academic consideration or religious accommodation, the instructor will either determine a mark based on your performance in other assessments, or provide a makeup test according to the instructor's judgement.

Disclaimer: the course is meant to provide educational material on finance and economics. The material is not to be construed as financial advice. If students take actions on their own to incur financial losses and other harms, the instructor and university are not liable for their losses/harms.

Copyright statement: the students are not permitted to reproduce the teaching material (lecture notes and text) in any form. They are prohibited from copying the lecture material and text. They are prohibited from digitizing the text for online distribution. If illegitimate copies of the lecture notes or text are found, they will be confiscated. Use of cell-phones, audio-recording, and taking pictures during the class are not permitted.

Last Day to Drop Course

The final day to drop Summer 2025 courses without academic penalty is the last day of classes: August 01

After this date, a mark will be recorded, whether course work is completed or not (a zero is assigned for missed tests/assignments). This mark will show on the student's transcript and will be calculated into their average.

Standard Statements for Graduate Courses

Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy (<https://calendar.uoguelph.ca/graduate-calendar/general-regulations/academic-misconduct/>) is outlined in the Graduate Calendar.

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Use of the SAS Exam Centre requires students to make a booking at least 10 business days in advance, and no later than the first business day in November, March or July as appropriate for the semester. Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time. For students at the Guelph campus, information can be found on the SAS website. (<https://www.uoguelph.ca/sas/>)

Accommodation of Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor within two weeks of the start of the semester to make alternate arrangements.

See the Academic calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations (<https://calendar.uoguelph.ca/graduate-calendar/general-regulations/academic-accommodation-religious-obligations/>)

Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Drop Date

Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. The regulations and procedures for Dropping Courses (<https://calendar.uoguelph.ca/graduate-calendar/general-regulations/registration/>) dropping courses are available in the Graduate Calendar (<https://calendar.uoguelph.ca/graduate-calendar/general-regulations/registration/>).

Email Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly. e-mail is the official route of communication between the University and its students.

Health and Wellbeing

The University of Guelph provides a wide range of health and wellbeing services at the Vaccarino Centre for Student Wellness (<https://wellness.uoguelph.ca/>). If you are concerned about your mental health and not sure where to start, connect with a Student Wellness Navigator (<https://wellness.uoguelph.ca/navigators/>) who can help develop a plan to manage and support your mental health or check out our mental wellbeing resources. (<https://wellness.uoguelph.ca/shine-this-year/>) The Student Wellness team are here to help and welcome the opportunity to connect with you.

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars (<http://www.uoguelph.ca/registrar/calendars/?index>) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Graduate Calendar for information on regulations and procedures for Academic Consideration (<https://calendar.uoguelph.ca/graduate-calendar/general-regulations/grounds-academic-consideration/>).