

Economics 209 (L01) - (ENGG 209) Engineering Economics

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Lecture Location: ENG 60
Lecture Days/Time: MW 18:00 - 20:45

Office: SS 346
Office Hours: MW 16:00 - 17:00

Summer 2022

Course Description:

This course includes the basic tools and methodology of engineering economic studies. Topics include basic economic concepts, investment decisions, theory of replacement, and project evaluation with taxes and depreciation. Examples are drawn from the textbook and various engineering projects.

Course Objective:

The objective of this course is to introduce the engineering students to the discipline of economics and its importance in the field of engineering, and to provide them with the basic economic and financial concepts for decision making of various engineering projects and financial management. Students who complete this course successfully will be able to apply concepts and techniques of economic analysis to the evaluation of a given project and engineering alternatives to choose the one with the best prospects for success.

Course Learning Outcomes:

The curriculum for Econ 209 involves two parts. The first part of the course looks at the broad definition of economics and an overall view of Canada's economy in comparison to other economic systems. It addresses the important macroeconomic issues such as the measurement of GDP, inflation, and the importance of investment spending and the banking system. Since the interest rate is the firm's financial cost of capital, this part explores the role of the Bank of Canada and its relationship with other financial institutions in determining short-term interest rates.

The second (and most comprehensive) part of the course examines the time value of money and how engineers use the time value of money to make important economic decisions. It also examines how interest rates and different compounding periods influence the future value of various capital investments. Future value and present value of annuities, bond and mortgages are also explored. Once we get a solid foundation in this area, we then use these tools to determine the net present value, internal rate of return and payback period of various investment options, which includes depreciation and taxes. Replacement analysis of equipment is also examined.

Course Outline:

This course covers the following topics. (Note: Some topics may be added or removed depending on time constraints)

Parts	Topics	Textbooks
Part 1 Macroeconomic Foundations	Introduction	
	Introduction to Economics	Hubbard – Ch. 1
	Basic Economic Concepts	
	GDP and Economic Growth	Hubbard – Ch. 4-7
	Unemployment and Inflation	Hubbard – Ch. 5
	Saving, Investment, and the Financial System	Hubbard – Ch. 6
	Money and Banking	Hubbard – Ch. 10
Part 2 Engineering Economic Analysis	Time Value of Money	
	Interest and Equivalence	Newnan – Ch. 3
	Equivalence for Repeated Cash Flows	Newnan – Ch. 4
	Mortgages	Newnan – Ch. 6
	Project Analysis	
	Present Worth, Rate of Return, and Other Analysis Techniques	Newnan – Ch. 5-8
	Income, Depreciation, and Cash Flow	Newnan – Ch. 11
	Cost of using Borrowed Money	Newnan – Ch. 12
	Replacement Analysis	Newnan – Ch. 13

Prerequisites/corequisites:

Students must be in the Faculty of Engineering with second year standing or higher. The prerequisites for this course can be found at: <https://www.ucalgary.ca/pubs/calendar/current/economics.html>. If not registered in the Schulich School of Engineering, consent of the Department of Economics is needed. If required for APEGA, consent must be obtained by the Schulich Undergraduate Studies Office.

Required Textbook:

Newnan, D.G., Whittaker, J., Eschenbach, T.G., Lavelle, J.P., 2018. *Engineering Economic Analysis*, Fourth Canadian Edition. Oxford University Press.

Recommended Textbook:

Hubbard, R.G., O'Brien, A.P., Serletis, A., Childs, J., 2018. *Macroeconomics*, Second Canadian Edition. Pearson Canada Inc, Toronto.

Books on Reserve:

- Newnan, D.G., Whittaker, J., Eschenbach, T.G., Lavelle, J.P., 2018. *Engineering Economic Analysis*. Fourth Canadian Edition. Oxford University Press.
- Hubbard, R.G., O'Brien, A.P., Serletis, A., Childs, J., 2018. *Macroeconomics*. Second Canadian Edition. Pearson Canada Inc, Toronto.

Desire2Learn:

This course will make use of the Desire2Learn (D2L) platform. Students who are registered in the course can log on at <http://d2l.ucalgary.ca> through their student centre. Please note that D2L features a class e-mail list that may be used to distribute course-related information. These e-mails go to your University of Calgary e-mail addresses only.

Tutorials:

Students are expected to attend the weekly tutorial section to which they have been assigned. During the tutorials, the TA will discuss pre-assigned questions and additional material relevant to the course that is not covered in lectures.

Grade Determination and Final Examination Details:

Quizzes (W July 13 and W Aug 10) - 10% each	20%
Midterm Exam (W July 27)	30%
Final Examination (TBA)	50%
	<hr/>
	100%

The official grading system will be used. See <http://www.ucalgary.ca/pubs/calendar/current/f-1-1.html>.

A passing grade on any component of the course is not required for a student to pass the course as a whole.

If a student's letter grade on the final exam exceeds the letter grade of the midterm, the weight of the midterm is transferred to the final exam at the discretion of the instructor. The student must have written the midterm or provided supporting documentation for the absence such as a medical note or statutory declaration.

As per the Writing Across the Curriculum Statement in the Calendar, writing and grading thereof will be a factor in the evaluation of student work. See <https://www.ucalgary.ca/pubs/calendar/current/e-2.html>.

Course material dealing with a particular quiz will typically be covered in class at least 5 days before the quiz is written. Given these factors, only situations where someone can document illness or domestic affliction for an extended period would possibly warrant shifting the quiz weight to the final exam.

Any student work which remains undistributed after the last day of classes will be available to students through the instructor's office during the instructor's office hours.

The final examination will be comprehensive, scheduled by the Registrar, held in a classroom, and last 2 hours. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam <https://www.ucalgary.ca/pubs/calendar/current/g-6.html>. Under no circumstance will this be accommodated by the Department.

Quizzes and exams WILL involve multiple choice questions. The midterm exam will be held in class on **Wednesday July 27**.

Programmable calculators, cellphones, textbooks, course notes, and other electronic devices will not be allowed during the writing of quizzes, midterm, and final examinations. Students are reminded that simply being able to access their cellphone during an exam is academic misconduct.

THERE WILL BE NO MAKEUP OR DEFERRED QUIZZES/TESTS/EXAMS under any circumstances, nor may the quizzes/tests/exams be written early. Students unable to write the quizzes/tests/exams because of documented illness, family emergency, religious observance, or university-sanctioned event will have the weight shifted to the final examination; otherwise, a grade of zero will be assigned.

Reappraisal of Grades:

For Reappraisal of Graded Term Work, see Calendar I.2

<http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

For Reappraisal of Final Grade, see Calendar I.3

<http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

Academic Misconduct:

Academic Misconduct refers to student behavior that compromises proper assessment of students' academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.

Student committing academic misconduct during the final exam will not receive a passing grade for the course.

For information on the Student Academic Misconduct Policy, Procedure and Academic Integrity, please visit: <https://www.ucalgary.ca/pubs/calendar/current/k-3.html>

Academic Accommodations:

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services. SAS will process the request and issue letters of accommodation to instructors. Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their instructor. The full policy on Student Accommodations is available at

<https://www.ucalgary.ca/legal-services/university-policies-procedures/accommodation-students-disabilities-procedure>

Freedom of Information and Protection of Privacy (FOIP) Act:

Personal information is collected in accordance with FOIP. Assignments can only be returned to the student and will be accessible only to authorized faculty and staff. For more information, see <https://www.ucalgary.ca/legal-services/access-information-privacy>

Copyright Legislation:

See the University of Calgary policy on Acceptable Use of Material Protected by Copyright at <https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy> Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

Recording of Lectures:

Recording of lectures is prohibited, except for audio recordings authorized as an accommodation by SAS or an audio recording for individual private study and only with the written permission of the instructor. Any unauthorized electronic or mechanical recording of lectures, their transcription, copying, or distribution, constitutes academic misconduct. See <https://www.ucalgary.ca/pubs/calendar/current/e-6.html>.

Important Dates:

Please check: <http://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>.

Student Organizations:

Faculty of Arts Students' Association (F.A.S.A.):
Economics Department Representative
E-mail: econrep@fasaucalgary.ca
Website: www.fasaucalgary.ca.

Society of Undergraduates in Economics: <https://www.ucalgarysue.com/>.

Society of Undergraduates in Economics is a student run organization whose main purpose is to assist undergraduate economics students to succeed both academically and socially at the University of Calgary. Services include access to the exam bank, career events such as Industry Night and information sessions, mentorship programs, and social events for members. They invite you to join by contacting SUE at societyofundergradsineconomics@gmail.com.

Faculty of Arts Program Advising and Student Information Resources:

- Have a question, but not sure where to start? The Arts Students' Centre is your information resource for everything in Arts! Drop in at SS102, call them at 403-220-3580, or email them at artsads@ucalgary.ca. You can also visit the Faculty of Arts website at <http://arts.ucalgary.ca/undergraduate>, which has detailed information on common academic concerns, including program planning and advice.
- For registration (add/drop/swap), paying fees and assistance with your Student Centre, contact Enrolment Services at 403-210-ROCK [7625] or visit them in the MacKimmie Tower.

Student Support and Resources:

- See <https://www.ucalgary.ca/registrar/registration/course-outlines> for information on campus mental health resources, the Student Ombuds Office, Student Success Centre, Safewalk, and Emergency Evacuation and Assembly.
- Online writing resources are available at <https://ucalgary.ca/student-services/student-success/writing-support>.

Notes:

1. Students are responsible for all assigned material, e.g., supplementary material posted on D2L, regardless of whether the material was covered in class or not.
2. Please note that the following types of emails will receive no response: Emails which do not list the relevant course; emails which are not signed with student's full name and UCID; and emails involving questions that are specifically addressed on the course outline, lecture slides, or posted on D2L. For a quicker response time, please copy your TA on emails.