

## Economics 209 (L01) (Engineering Economics)

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Office: SS348  
Office Hours: MW: 3:00 – 3:50

Lecture Location: ST 135  
Lecture Days/Time: MW/4:00 p.m. – 6:45 p.m.  
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(Summer 2018)

### Course Description

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

### Course Objectives/Learning Outcomes

The objective of this course is to introduce the engineering student to the discipline of economics and its importance in the field of engineering. 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. In particular, we look at the important macroeconomic issues such as GDP, inflation and the importance of investment spending and the banking system. Since the interest rate is the firm's financial cost of capital, we explore 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. In this section, we examine 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. The last part of the course explores the economic evaluation of public projects where the goal is to maximize social welfare instead of profits.

### Course Outline

	<u>Course Topics</u>	<u>Text</u>
1.	Introduction General Micro and Macro concepts	<i>Lecture notes</i> Chapters 1, 4 and 5 ( <i>Hubbard et al.</i> )
2.	Money, Banking and Monetary Policy	<i>Chapter 10 (Hubbard) and Lecture notes</i>
3.	Time Value of Money and Economic Equivalence	Chapters 3 and 4 ( <i>Park et al.</i> )
4.	Analysis of Independent Projects / Mutually Exclusive Alternatives	Chapters 5 and 6

5.	Depreciation and Income Taxes	Chapters 8 and 9
6.	Developing After Tax Cash Flows (with and without borrowed funds)	Chapter 10
7.	Replacement Decisions	Chapter 11
8.	Inflation and Project Cash Flows	Chapter 14
9.	Economic Analysis in the Public Sector	Chapter 13 (if time permits)

The basic lecture notes for Course Topics #1 and #2 (without graphs) will be provided on Desire2Learn. These notes are usually posted after the lecture so attendance to the lecture is important. Any graphs and additional notes that students may wish to take down can be added to the notes from Desire2Learn.

### Prerequisites/corequisites

Students must be in the Faculty of Engineering with second year standing or higher. 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(s)

Park, Zuo et al., *Contemporary Engineering Economics (Canadian Perspective)*, Addison-Wesley, 3<sup>rd</sup> Canadian Edition.

### Reserved Readings

Hubbard et al. *Macroeconomics*. Second Canadian Edition. Toronto: Pearson.

Midterm Examination (Monday July 30 <sup>th</sup> , 2018)	1	30%
Quizzes Mon. July 16 <sup>th</sup> (10 percent) Mon. Aug 13 <sup>th</sup> (10 percent)	2	20%
Final Examination	1	<u>50%</u>
Total		100%

### Tutorials

The tutorials will be 50 minutes in duration and these tutorials will allow the student to work on problem sets and clarify various economic concepts. The starting date of the tutorials will be announced in class. Quizzes will be given during the first 25 minutes of the lecture.

**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.

**Grade Determination and Final Examination Details**

Department of Economics Criteria for Letter Grades. Economics professors use the following criteria when assigning letter grades:

Grade	Grade Point Value	Description	Grade	Grade Point Value	Description
A+	4.00	Outstanding	C+	2.30	
A	4.00	Excellent-superior performance, showing-comprehensive understanding of subject matter	C	2.00	Satisfactory – basic understanding of the subject matter
A-	3.70		C-	1.70	Receipt of a grade point average of 1.70 may not be sufficient for promotion or graduation. (See individual undergraduate faculty regulations.)
B+	3.30		D+	1.00	
B	3.00	Good – clearly above average performance with knowledge of subject matter generally complete.	D	1.00	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
B-	2.70		F	0	Fail – unsatisfactory performance or failure to meet course requirements
			I	0	Incomplete – unsatisfactory (effective January 2007)

**Grading Scale**

A+	97– 100	B	75 – 79	C-	60 – 62
A	90 – 96	B-	70 – 74	D+	55 – 59
A-	85 – 89	C+	67 – 69	D	50 – 54
B+	80 – 84	C	63 – 66	F	0 – 49

Tests and final exams are marked on a numerical (percentage) basis, then converted to letter grades. The course grade is then calculated using the weights indicated above. I use the midpoint between letter grades as a cutoff. For example, a score of 66.5 is rounded up to a “C+”. A score of 66.4 will be rounded down to a “C”.

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

There will be a Registrar scheduled final examination, held in a classroom, lasting 2 hours. Non-programmable calculators will be allowed during the writing of tests or final examinations.

Quizzes and exams will involve multiple choice questions.

### Reappraisal of Grades

#### Reappraisal of Grades and Intellectual Honesty:

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>

Statement of Intellectual Dishonesty, see Calendar K.4

<http://www.ucalgary.ca/pubs/calendar/current/k-4.html>

Plagiarism and Other Academic Misconduct, , see Calendar K.5

<http://www.ucalgary.ca/pubs/calendar/current/k-5.html>

#### Academic Accommodations:

The student accommodation policy can be found at: [ucalgary.ca/access/accommodations/policy](http://ucalgary.ca/access/accommodations/policy).

Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities [ucalgary.ca/policies/files/policies/student-accommodation-policy](http://ucalgary.ca/policies/files/policies/student-accommodation-policy).

Students needing an Accommodation based on a Protected Ground other than disability should communicate this need, preferably in writing, to the course instructor.

#### Important Dates:

Date	
Tuesday July 3 <sup>rd</sup>	Lecture begins
Monday July 9 <sup>th</sup>	End of refund period
Wednesday July 11 <sup>th</sup>	Tuition deadline
Monday July 16 <sup>th</sup>	Quiz #1
Monday July 30 <sup>th</sup>	Midterm Exam
<b>Monday August 6<sup>th</sup></b>	<b>Heritage Day – no classes</b>
Monday August 13 <sup>th</sup>	Quiz #2
Wednesday August 15 <sup>th</sup>	Spring classes end
Fri. Aug. 17 <sup>th</sup> to Mon. Aug 20 <sup>th</sup>	Final Exam Period for Summer courses

For a full list of important dates, please check:

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

**Absence from a Quiz/Test/Exam**

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. 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 [www.ucalgary.ca/registrar/exams/deferred\\_final](http://www.ucalgary.ca/registrar/exams/deferred_final). Under no circumstance will this be accommodated by the department.

**Student Organizations:**

Faculty of Arts Students' Association (F.A.S.A.):

Economics Department Representative

Office: SS 803, E-mail: [econrep@fasaucalgary.ca](mailto:econrep@fasaucalgary.ca) and Web: [www.fasaucalgary.ca](http://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](mailto: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](mailto: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 Library Block.
- Online writing resources are available at <http://www.ucalgary.ca/ssc/resources/writing-support>.

**Evacuation Assembly Point:**

In case of an emergency evacuation during class, students must gather at the designated assembly point nearest to the classroom. The assembly point for this classroom is the main lobby of the Social Science Building.

**Safewalk:**

The Safewalk program provides volunteers to walk students safely to their destination anywhere on campus. This service is free and available 24 hrs/day, 365 days a year. **Call 403-220-5333.**

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

Personal information is collected in accordance with FOIP. For more information, see <http://www.ucalgary.ca/legalservices/foip/foip-hia>.

**Internet and Electronic Communication Device information:**

The use of cell phones for any purpose in class is prohibited. Computers and tablets may be used for note-taking only.

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2018-04-20