

2026/2027, Fall Term

Engineering Economics

Civil and Environmental Engineering/Faculty of Engineering and Design

ECOR3800A/B

Teaching Team

Instructor:

Name: Dr. Elisabeth Gilmore, PhD

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office location & phone: RB5319

office hours: by request (remote or in-person)

TA(s): Information will be posted on Brightspace

Course Description and requirements

1) Course schedule

Activity	Day	Time	Location
Lecture	Fridays	11:35 a.m. – 2:25 p.m.	Refer to the Public Class Schedule for the most recent information

The three-hour Friday session is divided into two hours of lecture followed by one hour of TA-supported review, during which students raise questions and the instructor works through problems at the board.

*Please refer to the [Public Class Schedule](#) for the most recent information

2) Course description

Introduction to engineering economics; cash flow calculations; methods of comparison of alternatives; structural analysis; replacement analysis; public projects; depreciation and income tax; effects of inflation; sensitivity analysis; break-even analysis; decision-making under risk and uncertainty.

3) Precluded courses

N/A

4) Prerequisites and recommended knowledge

ECOR 1031, ECOR 1032, ECOR 1033, ECOR 1034, ECOR 1055, ECOR 1056, ECOR 1057 and at least third-year standing in Engineering.

5) Learning Outcomes

By the end of the course, successful students will be able to:

- Describe the role of engineers in economic decision making and ethical issues.
- Understand the time value of money.
- Perform economic comparison of alternatives.
- Conduct a replacement analysis.
- Analyze public projects.
- Describe the impact of depreciation, inflation, and income taxes on projects.
- Describe the basics of project management, including project workflows and scheduling.
- Perform sensitivity analysis, break even analysis, and risk analysis of projects.

6) Graduate Attributes

The Canadian Engineering Accreditation Board (CEAB) requires graduates of undergraduate engineering programs to possess 12 attributes. Courses in all four years of our programs evaluate students' progress towards acquiring these attributes. Aggregate data (typically, the data collected in all sections of a course during an academic year) is used for accreditation purposes and to guide improvements to our programs. Some of the assessments used to measure GAs may also contribute to final grades; however, the GA measurements for individual students are not used to determine the student's year-to-year progression through the program or eligibility to graduate. This following list provides the GAs that will be measured in this course, along with the Learning Outcomes that are intended to develop abilities related to these attributes.

GA	Assessment Tool
11.2: Engineering economics	Mid-Term / Assignments / Final
11.4: Risk and change management	Assignments
11.5: Project definition and management techniques	Mid-Term / Assignments / Final

For information on GAs and continual curriculum improvement, visit the [Accreditation section of Engineers Canada website](#).

7) Accreditation Units

Math	Natural Science	Complementary Studies	Engineering Science	Engineering Design
-	-	100%	-	-

8) Text book(s)/Learning Materials and their costs

- ☐ **Students are not required to purchase textbooks or other learning materials for this course.**
- ☐ However, it is recommended, although not mandatory, that students own a copy of the course textbook titled: "Engineering Economics: Financial Decision Making for Engineers" 8th edition by Fraser, and Schmitt (eTextbook \$77.99 CAD purchase price, from Pearson)

- ☐ The material for this course is heavily adopted from that textbook including the course's lecture slides.
- ☐ Lecture Notes: Powerpoint lecture slides will be posted on Brightspace at least one day prior to the lecture. Some sections of the lecture slides will be left blank and will be filled in during the lecture. Please be prepared to fill in your notes by hand, tablet, computer, or any other approach that works best for you.
- ☐ Lectures will not be recorded by the instructor. Students do not have permission to record the lectures (video and/or audio) on their own, unless it is part of their approved academic accommodation plan.

9) Topics and tentative plan

Week No.	Lecture Dates	Topic	Textbook Sections (8 th Edition)
1	Sept. 11	Introduction	1.1 – 1.6
2	Sept. 18	Time Value of Money	2.1 – 2.4, 2.7
3	Sept. 25	Time Value of Money / Cashflow Analysis	2.5 / 3.1 – 3.6
4	Oct. 2	Comparison Methods (Present Value)	4.1 – 4.5
5	Oct. 9	Comparison Methods (Internal Rate of Return)	5.1 – 5.7
6	Oct. 16	Project Management / Dealing with Uncertainty and Risk	11.1 – 11.3 / 12.1 – 12.2
	Oct. 23	Midterm week* (no lecture)	
	Oct. 30	Reading week (no classes)	
7	Nov. 6	Taxes / Depreciation	8.1 – 8.6 / 2.6
8	Nov. 13	Taxes / Depreciation / Inflation	8.1 – 8.6 / 9.1 – 9.4
9	Nov. 20	Replacement Decisions	7.2 – 7.8
10	Nov. 27	Public vs. Private Projects	10.1 – 10.5
11	Dec. 4	Course Review	
<i>*The midterm will be scheduled outside of class time during the week of October 19. Date and time to be confirmed.</i>			

Final examination will be set by Examination Services.

10) Evaluation and marking scheme

Evaluation Activity	Description	Value
Self-Evaluation Assessments	Nine weekly self-evaluation assessments, starting in Week 2 (administered through Brightspace)	10%
Assignments	Four individual assignments, spaced throughout the semester, testing students on lecture content	4 x 5% = 20%
Midterm	Closed-book exam covering all course content from Weeks 1 – 5 (multiple choice)	20%
Final Exam	Cumulative exam, scheduled during the University Final Exam Period (multiple choice)	50%

Each self-evaluation will correspond to a week of lecture content and cumulative course review. You will have unlimited attempts for all assessments (i.e., you can complete the assessments as many times as you want until you receive the desired grade). The first set of self-evaluations (corresponding to Weeks 2 – 5), will close before the midterm. The second set of self-evaluations (corresponding to Weeks 6 – 10) will close on the last day of classes. Refer to Brightspace for exact due dates and times. Late quiz submissions will not be accepted. Assessment grades will be reported immediately. Solutions will be posted before the mid-term and final exam, to give you time to review.

Unless otherwise stated, assignments are to be completed individually. Evidence of partial or full direct copying will be treated as plagiarism in accordance with Carleton University's Academic Integrity Policy.

a) Final Examination

- i) **Final exams are for evaluation purpose and will not be returned to students.**
- ii) Exam Conditions: The final exam will be an in-person, individual, closed book exam on all course content including material and concepts covered in lectures, assignments, and self-evaluations. Students are not allowed to bring any notes. An equation sheet, provided by the instructor, will be attached to the exam paper. Students may bring a calculator; however, it must not contain pre-programmed financial functions.
- iii) Final Exam Weight: 50%
- ii) Deferred Final Examinations: Students who are unable to write the final examination because of extenuating circumstances, as defined in the [Academic Consideration Policy](#), may apply for accommodation by contacting the Registrar's office. Consult the [Section 4.3 of the University Calendar](#).

b) Exam format and e-proctoring statement: In-person

c) Additional requirements: There are no additional requirements beyond the cumulative grade earned in the course in order to receive a passing grade.

d) Term work late submission policy: Assignments are due at 11:59pm on Brightspace. Refer to Brightspace for assignment due dates. Late submissions will be accepted after the due date, with a 10% deduction per day (or partial day), up to a maximum of three days. After three days, assignments will receive a mark of zero.

e) Deferred term work and self declaration

Students who claim extenuating circumstances defined in the [Academic Consideration Policy](#), as a reason for missed term work are held responsible for immediately informing the instructor concerned and for making alternate arrangements with the instructor and in all cases. This must occur no later than three (3) days after the term work was due. The alternate arrangement must be made before the last day of classes in the term as published in the academic schedule. Consult [Section 4.4 of the University Calendar](#).

There will be no deferred assignments or midterms for this course. In case you miss an assignment(s) or the midterm, the weight will be moved to the final exam.

11) Academic dates

Students should be aware of the academic dates (e.g. last day for academic withdrawal) posted on the Registrar's office web site <https://carleton.ca/registrar/registration/dates/academic-dates/> or [Calendar website](#).

Academic Integrity and Plagiarism

- a) Please consult the Faculty of Engineering and Design information page about the Academic Integrity policy and our procedures: <https://carleton.ca/engineering-design/current-students/fed-academic-integrity> Violations of the Academic Integrity Policy will result in the assignment of a penalty such as reduced grades, the assignment of an F in a course, a suspension or, expulsion.
- b) One of the main objectives of the Academic Integrity Policy is to ensure that **the work you submit is your own**. As a result, it is important to write your own solutions when studying and preparing with other students and to avoid plagiarism in your submissions. 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 violations of the policy include, but are not limited to:

- any submission prepared in whole or in part, by someone else;
- 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 of information through the use of proper citations when using another’s work and/or failing to use quotations marks.

Unauthorized Dissemination

As per Carleton's [Academic Integrity Policy](#), Unauthorized Dissemination is a violation of the standards of academic integrity to publish, disseminate, or otherwise make available to a third-party instructional material where the instructor has explicitly prohibited their dissemination.

The materials (including the course outline, slides, posted notes, videos, labs, projects, assignments, quizzes, exams, and solutions) created for this course are intended for personal use only. They may not be reproduced, redistributed, or disseminated in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without written permission from the author(s), both during and after the semester.

Generative Artificial Intelligence (GenAI)

Generative Artificial Intelligence (GenAI) tools (e.g., ChatGPT, Copilot, Gemini, Claude) may be used in this course as learning support tools. Appropriate uses include assisting with studying, reviewing course concepts, understanding terminology, generating practice questions, improving the clarity or grammar of written work, and obtaining explanations of engineering economics concepts.

Students may not use GenAI to generate solutions to assignments, quizzes, examinations, self-evaluations, or any other graded work that is intended to evaluate their individual understanding of course material. Submitting AI-generated content, calculations, analyses, or written responses as one's own work constitutes a violation of Carleton University's Academic Integrity Policy.

If GenAI is used in the preparation of any submitted work, students must clearly disclose the tool used and describe how it contributed to the work. The instructor may request additional information regarding the nature and extent of GenAI use.

The rationale for this policy is that the course learning outcomes require students to independently perform economic analyses, evaluate alternatives, and apply engineering decision-making methods. While GenAI can support learning and study activities, students must demonstrate their own understanding and competency in these skills.

Students remain responsible for verifying the accuracy, quality, and appropriateness of any information obtained from GenAI tools. Incorrect, fabricated, or misleading information generated by AI does not excuse errors in submitted work.

As our understanding of the uses of GenAI and its relationship to student work and academic integrity continue to evolve, students are required to discuss their use of GenAI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

Safer Learning and Working Environment

Carleton University and all members of the University community share responsibility for ensuring that the University's educational, work and living environments are free from discrimination and harassment. Should you have concerns about harassment or discrimination relating to your age, ancestry, citizenship, colour, creed (religion), disability, ethnic origin, family status, gender expression, gender identity, marital status, place of origin, race, sex (including pregnancy), or sexual orientation, please contact the [Department of Equity and Inclusive Communities](#) at equity@carleton.ca, [Ombuds Services - Carleton University](#) or submit an anonymous human rights concern through [this form](#).

Academic Accommodations

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes, including information about the Academic Consideration Policy for Students in Medical and Other Extenuating Circumstances, are outlined on the Academic Accommodations website (students.carleton.ca/course-outline)

Engineering Academic Advising

[The Engineering Academic Support Service](#) assists undergraduate engineering students with course selection, registration, and learning support from first-year through to graduation. Academic Advisors Contact can be found here: <https://carleton.ca/engineering-design/current-students/undergrad-academic-support/undergraduate-advisors/>.

Student Mental Health and Wellness

As a university student you may experience a range of mental health challenges that can significantly impact your academic success and overall well-being. Carleton's [Wellness Services Navigator](#) is designed to help students connect with mental health and wellness resources.

If you need to talk to someone from the department for more information and support with connecting to resources, you can contact the following faculty members, depending on your program. Or contact the department.

Department: CEEUGChair@cunet.carleton.ca

Prof. Shoeleh Shams

Email: shoelehshams@cunet.carleton.ca, Office: 4242 Mackenzie

ACSE: Prof. Cara [Lozinsky](#)

Email: caralozinsky@cunet.carleton.ca, Office: 2374 Mackenzie

CIVE: Prof. [Christian Viau](#)

Email: Christian.Viau@carleton.ca, Office: 4535 Mackenzie

ENVE: Prof. [Cole Van De Ven](#)

Email: cole.vandeven@carleton.ca, Office: 6210 Canal Building

Here is a list of on-campus and off-campus recourses:

1. [Emergencies and Crisis](#)
2. **Carleton's Wellness Desk:** Located at 204A MacOdrum Library, is a space for students to learn about resources, connect with our Wellness Coordinator, and decompress during stressful times of the year. You can pop into the Wellness Desk any time during its hours of operation – no appointments necessary! <https://wellness.carleton.ca/mental-health/wellness-desk/>
3. **Carleton's Care and Support Team:** The role of a Care and Support Team is to support students with any questions or concerns they may have relating to their academics, well-being, finances or any other challenges they may be experiencing. <https://wellness.carleton.ca/mental-health/student-care-and-support-team/>
4. **Carleton's Health and Counselling Services:** To book an appointment visit the [CHR Connect App](#) or contact the main clinic by calling 613-520-6674 ext. 2. If urgent, let the Patient Care Coordinator know or go in person to the main clinic (2500 Carleton Technology and Training Centre Building) and indicate that they are in crisis and need to speak to someone right away. <https://wellness.carleton.ca/counselling/>
5. **Carleton's Single Session Counselling:** To book an appointment visit the CHR Connect App. <https://thconnect.telushealth.com/mobile-app-information/xz6lzGrv>
6. **Residence Counselling and Wellness Service:** Counselling services specifically for students in residence. To book an appointment call 613-520-2600 ext. 8061. <https://carleton.ca/health/residence-counselling/>

7. **Carleton's Therapy Dogs:** Carleton's therapy dogs are around campus with their owners (who are Carleton University staff and faculty) to comfort and provide support to help you thrive as a university student. <https://wellness.carleton.ca/mental-health/therapy-dogs/>
8. **Good2Talk (1-866-925-5454):** Good2Talk is a free, confidential helpline providing professional counselling and information and referrals for mental health, addictions and well-being to post-secondary students in Ontario, 24/7/36 <https://good2talk.ca/>
9. **The Walk-In Counselling Clinic (off-campus community resource):** The Walk-in Counselling Clinic has offices in various locations across Ottawa and the greater Champlain region that are open 7 days a week. Individuals will be assisted, with no appointment, on a first-come, first-serve basis during the Walk-in Counselling Clinic hours. The Walk-in Counselling Clinic **offers services in many languages** and is free and confidential. More information can be found at: <https://walkincounselling.com/>
10. **Distress Centre of Ottawa and Region:** Available 10am-11pm, 7 days/week, 365 days/year. **Distress Line:** 613-238-3311, **Crisis Line:** 613-722-6914 or 1-866-996-0991, **Text:** 343-306-5550. <https://www.dcottawa.on.ca/>
11. **Distress and Crisis Ontario,** Available for chat 2 pm – 2 am EST. <https://www.dcontario.org/>
12. **BounceBack Ontario (Toll-Free: 1-866-345-0224)** is a free skill-building program managed by the Canadian Mental Health Association (CMHA). It is designed to help adults and youth 15+ manage low mood, mild to moderate depression and anxiety, stress or worry. Delivered over the phone with a coach and through online videos, you will get access to tools that will support you on your path to mental wellness. <https://bouncebackontario.ca/>.