ENV E 302 Environmental Impact Assessment

Winter 2025 - January 6 to April 9

Class time: Monday, Wednesday, Friday 12:00-12:50 Location: NRE 2-127

Instructor:

Heidi Cossey, PhD, she/her

cossey@ualberta.ca
DICE 7-361
Office Hours: Monday 4:00-5:00 pm (subject to change)

Course Description:

*2.5 (fi) (either term, 2-1S-0) Need and objectives of environmental impact assessment (EIA). Basic tasks and methods for need justification, project description, environmental factor determination, impact prediction, significance testing, mitigation design, evaluation, reporting, and public review. Review of impacts of different types of engineering projects and activities. Corequisite: ENV E 325

Course synchronous and asynchronous content delivery schedule:

All lectures, seminars, and exams will be delivered synchronously. Completed lecture notes will be made available on eClass.

Seminars will be used for guest lectures, in-class group activities, and student case study presentations. As such, the Monday session will not always be used as a seminar. However, the total number of seminars will be according to the Calendar description.

Land Acknowledgment:

The University of Alberta respectfully acknowledges that we are located on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples including the Cree, Blackfoot, Métis, Nakota Sioux, Iroquois, Dene, Ojibway/ Saulteaux/Anishinaabe, Inuit, and many others whose histories, languages, and cultures continue to influence our vibrant community.

TA Information:

Catherine Mar Pineda
marpined@ualberta.ca
Office Hours: Tuesday 9:00 - 10:00 am (NREF Help Desk Room 2-022)

Seminar Sections:

Section	Day	Time	Location
SEM J11	Monday	12:00 - 12:50	NRE 2-127

Course Objectives & General Content:

This is an introductory course on environmental impact assessment (EIA). The course provides an overview of generic and Canada/Alberta-specific EIA processes. Basic methods for predicting impacts on select environmental media will be studied. General impacts of different types of engineering projects will be reviewed.

The goal for this course is for students to effectively participate in an environmental impact assessment process and learn about impacts of major engineering projects.

The objectives for this course are for students to be able to:
1) Apply basic EIA procedures
2) Identify general impacts of major engineering projects
3) Apply simple engineering tools to predict environmental impacts

Learning Outcomes:

By the end of this course, students should be able to:

1. Explain sustainable development and its relation to environmental impact assessment
2. Explain the general environmental impact assessment process
3. Explain Alberta environmental assessment process
4. Explain the federal environmental assessment process
5. Apply basic environmental impact assessment procedures for screening, scoping, impact identification, prediction, evaluation, and mitigation.
6. Apply simple engineering tools to predict environmental impacts on select media
7. Identify general impacts of major engineering projects

Marking Scheme:

Activity	(A)Synchronous	Due/Scheduled	Weight
Assignments	Asynchronous	See tentative schedule	10%
Case Study	Synchronous	March 31, 2025	20%
Midterm Exam	Synchronous	February 14, 2025 in class	25%
Final Exam (Cumulative)	Synchronous	as per Bear Tracks (tentatively April 16, 2025 at 8:30 am)	45%

The Faculty recommended grade point average for a 300 level course is 3.0.Instructors have the leeway to deviate from this average and can assign grades based on their own scheme. All grades are approved by the department chair (or delegate). The office of the Dean has final oversight on all grades.

Term Work

All term work solutions will be posted no later than the last day of classes. All term work will be returned to students by the final day of classes, with the exception of major term work due in the last week of classes. The latter will be returned by the day of the final examination or the last day of the examination period if there is no final examination in the course as per university policy; instructors will make accommodations to return these term work. It is the responsibility of the student to pick up all their term work at the specified time and place. Any unreturned term work, shall be retained and then shredded six months after the deadline for reappraisal and grade appeals. Final examinations will be kept for one year as required by university guidelines and the Government of Alberta's Freedom of Information and Protection of Privacy Act.

Additional Notes

ASSIGNMENTS: Four assignments will be given over the course of the term (posted via eclass). Assignment due dates will be established when the problems sets are assigned, but a tentative schedule is attached. Assignments will be due at 4:00 pm on the due date and submitted electronically via eclass. Late assignments will not be accepted unless the instructor is notified by email before the assignment deadline and has approved the late submission. Late assignments will be subject to a 10% penalty for each 24-hour period in which the assignment is submitted past the deadline. No assignment will be accepted after 48 hours past the deadline or after the solution is posted on eClass, whichever comes first.

CASE STUDY: This course includes preparing a case study on the environmental impacts of an industry or industrial process (details posted on eClass). The case study will be completed in groups and will consist of an outline, extended abstract, and PowerPoint presentation. Each of the case study components will be due at 12:00 pm on the respective due date and submitted by email and electronically via eclass (see submission details in handout). Late case studies (including outlines, extended abstracts, and presentations) will not be accepted.

Calculator Policy

Only approved non-programmable calculators are permitted in examinations. Any calculator taken into an examination must have a sticker identifying it as an acceptable non-programmable calculator (gold sticker). Students can purchase calculators at the University Bookstore with the stickers already affixed. Calculators purchased elsewhere can be brought to the Student Services where the appropriate sticker will be affixed to the calculator.

Expectations for AI use

In this course, our primary focus is to cultivate an equitable, inclusive, and accessible learning community that emphasizes individual critical, creative, and affective thinking as well as disciplinary problem-solving skills. While it is reasonable to assume AI-use might accelerate some aspects of coursework, the determination has been made to not use such tools. In order to achieve the identified course learning outcomes, students must be given learning opportunities and tasks which enable students to develop and demonstrate their skills and knowledge across course and discipline specific projects, assignments, and assessments.

To ensure a just and consistent learning experience for all students, the use of advanced AI-tools such as ChatGPT or Dall-E 2 is strictly prohibited for all academic (written/coding/creative/etc.) work, assignments, and assessments in this course. Each student is expected to complete all tasks without substantive assistance from others, including AI-tools.

IMPORTANT: Please note that AI use is strictly prohibited in course work, assignments, and assessments. Failure to abide by this guideline may be considered an act of cheating and a violation as outlined in the relevant sections of University of Alberta (November 2022) Code of Student Behaviour .

Text and References (Recommended):

- Noble, B., Introduction to Environmental Assessment: A Guide to Principles and Practice. 4th edition, Oxford University Press, Canada, 2021.
- Supplementary material and handouts (posted on eClass)

Website:

eClass

Previous Examples of Evaluative Materials:

The eClass website will be used to provide students with lecture notes, completed lecture notes, assignments, assignment solutions, sample midterm and final exam questions and additional material (reading material, useful websites, etc).

Did you know that the University of Alberta has various low-to-no-cost services to help students succeed? Visit http://www.deanofstudents.ualberta.ca/ for information about the academic, wellness, and various other support services available to U of A students. It's never too early or too late to seek help!

Tentative Schedule

Week No.	Date	Topic (tentative)	Assignments Deadlines (tentative)	Case Study Deadlines
1	Jan 6	Introduction		
	Jan 8	Overview of EIA		
	Jan 10	EIA process: Screening		
2	Jan 13	EIA process: Screening		
	Jan 15	EIA process: Scoping	HW 1 posted	
	Jan 17	Alberta EIA process		
3	Jan 20	EIA process		
	Jan 22	Federal EIA process	DUE: HW 1	
	Jan 24	Impact Analysis I: Impact identification		
4	Jan 27	Impact Analysis I: Impact identification		
	Jan 29	Impact Analysis II: Prediction of air quality impacts	HW 2 posted	DUE: Topic selection
	Jan 31	Impact Analysis II: Prediction of air quality impacts		
5	Feb 3	Impact Analysis II: Prediction of air quality impacts		
	Feb 5	Impact Analysis II: Prediction of noise impacts	DUE: HW 2	
	Feb 7	Impact Analysis II: Prediction of noise impacts		
6	Feb 10	Impact Analysis II: Prediction of noise impacts		
	Feb 12	Midterm Review		
	Feb 14	**Midterm Exam (in class)**		
7	Feb 17 Feb 19 Feb 21	***Reading week (no classes)***		
8	Feb 24	Impact Analysis II: Prediction of water quality impacts		
	Feb 26	Impact Analysis II: Prediction of water quality impacts	HW 3 posted	DUE: Outline
	Feb 28	Indigenous Consultation		
9	Mar 3	***Student Union Election (no class)***		
	Mar 5	Impact Analysis II: Prediction of water quality impacts	DUE: HW 3; HW 4 posted	
	Mar 7	Impact Analysis III & Mitigation and Management		
10	Mar 10	Reporting, Reviewing & Decision Making		
	Mar 12	Special Topics: Environmental Impacts	DUE: HW 4	
	Mar 14	Special Topics: Environmental Impacts		
11	Mar 17	Impacts of mining		
	Mar 19	Impacts of mining		
	Mar 21	Impacts of mining		
12	Mar 24	Impacts of landfills		
	Mar 26	Impacts of landfills and transportation projects		
	Mar 28	Impacts of transportation projects		
13	Mar 31	*Student presentations*		DUE: Abstract & Powerpoint Presentation
	Apr 2	*Student presentations*		
	Apr 4	*Student presentations*		
14	Apr 7	*Student presentations*		
	Apr 9	Final Review		

Cumulative Final Exam

University and faculty policies

Respect and professionalism

The Faculty of Engineering is committed to fostering and protecting an equitable, inclusive, and respectful work and study environment in line with University of Alberta policies and professional engineering industry standards.

The faculty prepares students to uphold industry standards to become a Professional Engineer (P.Eng). Therefore, respect, professionalism, and accountability must be upheld within the Faculty of Engineering and the University of Alberta.

Academic integrity and student conduct

The University of Alberta is committed to the highest standards of academic integrity and honesty, as well as maintaining a learning environment that fosters the safety, security, and the inherent dignity of each member of the community, ensuring students conduct themselves accordingly. Students are expected to be familiar with the standards of academic honesty and appropriate student conduct, and to uphold the policies of the University in this respect.

Students are particularly urged to familiarize themselves with the provisions of the Student Academic Integrity Policy and the Student Conduct Policy, and avoid any behaviour that could

potentially result in suspicions of academic misconduct (e.g., cheating, plagiarism, misrepresentation of facts, participation in an offence) and non-academic misconduct (e.g., discrimination, harassment, physical assault). Academic and non-academic misconduct are taken very seriously and can result in suspension or expulsion from the University.

All students are expected to consult the Academic Integrity website for clarification on the various academic offences. All forms of academic dishonesty are unacceptable at the University. Unfamiliarity of the rules, procrastination or personal pressures are not acceptable excuses for committing an offence. Listen to your instructor, be a good person, ask for help when you need it, and do your own work -- this will lead you toward a path to success. Any academic integrity concern in this course will be reported to the College of Natural and Applied Sciences. Suspected cases of non-academic misconduct will be reported to the Dean of Students. The College, the Faculty, and the Dean of Students are committed to student rights and responsibilities, and adhere to due process and administrative fairness, as outlined in the Student Academic Integrity Policy and the Student Conduct Policy. Please refer to the policy websites for details on inappropriate behaviours and possible sanctions.

The College of Natural and Applied Sciences (CNAS) has created an Academic Integrity for CNAS Students eClass site. Students can self-enroll and review the various resources provided, including the importance of academic integrity, examples of academic misconduct & possible sanctions, and the academic misconduct & appeal process. Students can also complete assessments to test their knowledge and earn a completion certificate.

"Integrity is doing the right thing, even when no one is watching." -- C.S. Lewis

The Faculty of Engineering expects an environment free of harassment, discrimination, and bullying. We encourage you to talk to the Office of Safe Disclosure and Human Rights about experiences, questions, or concerns. Additional resources and support for students are attached below.

Engineering students studying in the province of Alberta must also follow the Code of Ethics set by the Association of Professional Engineers and Geoscientists of Alberta (APEGA).

Course outline policies, course requirements, evaluation and grading information can be found in the University Calendar.

Safety during learning activities

In all Faculty of Engineering courses, labs, seminars or other learning activities, safety is of paramount importance. In some cases, laboratory work in a program requires high standards for risk management to keep potential hazards safely under control.

Anyone found to be unable to function safely in the class, lab, seminar or other learning activity may be asked to leave or be removed for their and the safety of other participants and instructors in alignment with the Student Academic Integrity Policy and Student Conduct Policy. As members, or prospective members, of the engineering profession, it is your responsibility to identify and inform the proper authorities of unsafe work.

Audio and video recording

Audio or video recording, digital or otherwise, of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan.

Student or instructor content, digital or otherwise, created and/or used within the context of the course is to be used solely for personal study and is not to be used or distributed for any other purpose without prior written consent from the content author(s).

Only those items specifically authorized by the instructor may be brought into the exam facility. Students must not bring any unauthorized electronic device into an examination room, including cell phones or other devices.

Student services and support

Health & Wellness Support

Counselling and Clinical Services

Free, short-term, appointment-based counselling and psychiatric services. Also offers drop-in workshops. Book an initial consultation. Visit uab.ca/CCS to learn more.

Wellness Supports Social Workers

Free one-on-one support for students in the areas of housing, finances, academics, personal wellness, life skill development, family dynamics, system navigation, and any area of life where there is a desire to invite change. Visit uab.ca/wellness to learn more.

Sexual Assault Centre

Free, anonymous, and confidential drop-in counselling. Visit uab.ca/UASAC to learn more.

The Office of Safe Disclosure & Human Rights (OSDHR)

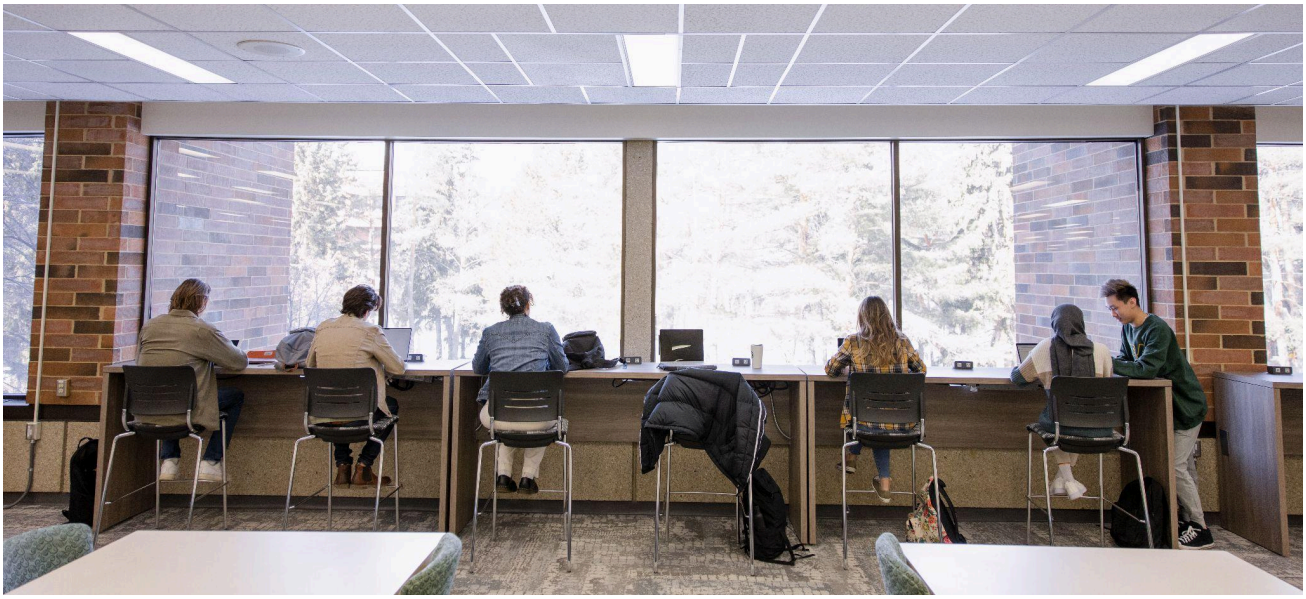
The OSDHR advises confidentially on sensitive issues you may not feel comfortable solving on your own. Contact the OSDHR if you want to get help or to make a report while keeping your privacy. Visit uab.ca/OSDHR to learn more.

HIAR (Helping Individuals at Risk)

If you're worried about someone, contact HIAR, who can help assess risk and connect individuals to support. Learn more at uab.ca/HIAR.

Immediate External Supports

Health Link Alberta: 811
Suicide Crisis Helpline: 988



Academic support

Academic Success Centre
Access to a variety of services to maximize your academic success. Learn more at uab.ca/ASC.

Accessibility Resources
Connects students with disabilities to accommodations. Learn more at uab.ca/Access under accommodations + accessibility.

Decima Robinson Support Centre
Academic support for 100- or 200-level introductory calculus, linear algebra and statistics courses. Visit uab.ca/DSC to learn more.

Engineering Student Success Centre
The Faculty of Engineering provides drop-in tutoring for first-year courses. Visit uab.ca/ESSC to learn more.

Office of the Student Ombuds
Call for complex problems and conflict mediation. Learn more at uab.ca/ombuds.

Financial support

Student Service Centre

For awards and other funding support. Learn more at uab.ca/ask.

Campus Food Bank

The Campus Food Bank Society is an independent charity supporting University of Alberta students, faculty, staff, and alumni for up to five years. For additional information visit their website at campusfoodbank.com.