

University of Toronto Scarborough

Department of Physical and Environmental Sciences

EESC13 - Environmental Impact Assessment and Auditing

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Lecture time: Tuesday 3 pm to 5 pm

Location: In Person – Class **HW215**

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Required textbook: Hanna, Kevin S. (Ed.) 2016. 3/E. Environmental Impact Assessment: Practice and Participation. Oxford University Press, Toronto.

The course textbook is available from the UTSC Bookstore. Relevant Chapters of the book will be provided for reference and reading.

Additional sources used in the course are listed at the end of this document.

Course Overview: Environment is a system made up of various components that interact and can be impacted by alterations made by humans. Development in form of large or small size construction projects, mining, dams, roads, oil and gas exploitation among others can potentially

pose adverse impacts on various components of the Environment generally categorized into natural and human environments.

Environmental Impact Assessment (EIA) originated to address the impacts of development projects during the planning stage, to understand the environmental setting of the project, predict the potential impacts (adverse or even positive) and a plan for mitigating the adverse impacts if there were any, and for monitoring to ensure the impacts are managed in compliance with sustainability and applicable regulations.

Environmental Impact Assessment (EIA) has emerged as both an instrument of evaluation and as an important decision-making system. EIA is an integral part of environmental management in environmental policy at regional, national and international levels. While EIA ideally incorporates environmental consideration into planning and development processes, it is very much embedded within the growth ethic—it is not about preventing development. Ideally, EIA helps development occur within an environmentally responsive context. It informs decision-makers about the consequences of development decisions and identifies the likely or known impacts of development. However, even undertaking an EIA cannot guarantee that bad development decisions will *not* be made, that projects will perform as anticipated, or that impact mitigation will be done and will be effective.

This course, while providing the required technical knowledge on conducting an EIA, examines EIA from a critical perspective as a strategic, comprehensive, and pro-active process employed to integrate the ecological and social aspects of development into planning and environmental/resource management processes.

Course Objectives: This course presents the steps required to complete an EIA for development projects in accordance with the Impact Assessment Act (IAA) that came into effect (2019) as an update to the former Canadian Environmental Assessment Act (CEAA). The course objectives are meant to provide an understanding of Environmental System in the context of development, an overview of environmental system analysis with a hint of life cycle assessment (LCA) approach, and mainly a technical and critical overview of the EIA processes, a guide to normative and applied EIA practice, and to impart a fundamental understanding of how EIA works (or, sometimes, does not work) in the Canadian context.

EIA methods, approaches, regulation, and legislation are also discussed. Case studies from jurisdictions in Canada are used to illustrate themes and issues, along with an ongoing reference to practice in our province and at the federal level.

The technical structure of biophysical, socio-economic and cultural impact assessment will be presented with a particular emphasis on Indigenous Peoples rights and input in the EIA process in Canada.

Learning Objectives: By the end of the course students will have developed an understanding of EIA regulatory requirements, processes and stages including alternative analysis, baseline assessment, impact assessment methodologies, predictive methods, mitigation measures, monitoring requirements, socio-economic and cultural impacts, EIA terminology, Canadian EIA

practice and policy, and will have developed specific knowledge of the Canadian Federal EIA systems. Students should be able to critique and analyse the relative performance and influence of different EIA systems and understand the role of EIA in planning and environment/resource management.

Significant portion of the course evaluation (48%) is based on group projects where you will explore EIA methods and the regulatory framework, examine case studies, and take on the role of practitioners in various professional roles in the EIA process.

Given the current circumstances necessitating online classes, the class will be divided into several groups with a maximum of five members to work on a specific case study. Sample project (or projects) EIA components will be analyzed at the end of each session as a guide to work on a selected or hypothetical project in a real Canadian setting, by each group. A pool of worked EIA reports will also be available as a guide and reference and the main components will be discussed in class.

Evaluation

Evaluation Components	% Grade	Key (Tentative) Dates & Deadlines
One in-class quiz (up to 10 multiple choice Questions; 15 minutes in duration)	10	February 28
Assignment 1: <u>Individual</u> Project – Scoping an EIA for a Project Case	12	February 14
Assignment 2: <u>Individual</u> Project - Case-Study a. Preparing a checklist of Project Description, Emissions and Stresses (5%); b. Key Features of Baseline Conditions (7%)	12	March 7
Assignment 3: <u>Group</u> Project: Impact Assessment a. Identification and Assessment of Impacts b. Characterizing Impacts c. Mitigation Plan d. Monitoring Plan e. Reporting Preparing a presentation power point and a summary report	24	March 28 and April 4
Participation Group Project: Mini-Presentation	4	March 28 and April 4
Final Exam (written answers as well as multiple choice)	38	TBA
Total Grade Possible	100	

Tentative Lectures and Readings:

Readings are from your course textbook: Hanna (2016). There will be additional assigned readings that will be uploaded to Quercus as they become available.

Students should note that topics may span more than one lecture period.

January 10

An overview of the course, expectations, and objectives

Assignments and exams

A quick look at the textbook and some of the reading materials

Introduction to EIA; big picture

Impact Assessment Act (IAA)

The importance of EIA in Canadian environment and resource management

Key themes and definitions

EIA as a planning tool

Environmental Systems and Life Cycle Assessment Approach

Reading:

Ch. 1 Kevin Hanna

The ideal influence and attributes of EIA

Rational planning and EIA

January 17

History and background of impact assessment in Canada

Reading:

Ch. 2 Robert Gibson and Kevin Hanna

Formative events in Canadian EIA; evolution from reactive to proactive state

Sustainability

Efficacy

The state of EIA influence

January 24

Typical (ideal) stages in the EIA process, what happens at each stage?

Overview of the IAA,

How EIA process works in Canada

Reading:

Ch 1. Kevin Hanna (Note: this topic can take more than two hours to work through, depending on the level detail (i.e., class discussion) we go into)

Key terms

What happens at each stage in the EIA process?

How does the generic model (e.g. ISO14000 Scope) compare to our provincial and federal processes?

Different types of impact assessment (strategic, cumulative, social and economic)

Measuring and identifying impacts, techniques, and methods

January 31

Assignment 1 to be issued

Groups to be formed

Project Description and Alternative Analysis

The need for a development project and the environmental significance

Project Components in Construction, Operation and Decommissioning/Closure

Emissions and Stresses in a Source-Pathway-Receptor Context

Reading:

Arnold, L. and Hanna, K. (2017). Best Practices in Environmental Assessment: Cases Studies and Application to Mining. Canadian International Resources and Development Institute (CIRDI) Report 2017-003.

February 07

Groups to be finalized

Baseline Conditions

The concept of Impact or Study Area

Valued Environmental (Ecological) Components (VECs)

Reading:

Ch. 3 Robert Milne and Lorne Bennett

Baseline conditions, environmental attributes

Biophysical (Air, Water, Soil and Biological Environments),

Socio-economic and cultural environments

February 14

Due: Assignment 1

Assignment 2 to be issued

Impact Assessment Approaches and Methodologies

Predictive tools

Social Impacts

Significance, defined by impact magnitude, temporal and spatial characteristics and reversibility among other parameters

Reading:

Ch. 6 John Parkins and Ross Mitchell

What are social impacts?

How do we measure and value them?

Case study and examples

Assessing cumulative impacts

Ch. 7 Graham Whitelaw and Daniel McCarthy

Defining cumulative impacts

Understanding the estimation and measurement of cumulative

February 21

Reading Week

February 28

Assignment 3 to be issued (Group Project, Final Presentation and a Summary Report)

Quiz (start of class, duration: 15 minutes)

Impact Assessment continued

Expanded Examples of Matrices, Checklist etc.

Mitigation Measures and Monitoring

Reading:

Ch. 6 John Parkins and Ross Mitchell

March 07

Due: Assignment 2

Public participation, a key part of successful and meaningful EIA

Rights of Indigenous Peoples and their input in the EIA process

Ch. 4 A. John Sinclair and Alan Diduck

The importance of participation

How should participation affect EIA?

Participation techniques and examples

March 14

Hearing

Ch.18 Charles Hostovsky and Sonya Graci

What is a Hearing? Assessment boards and hearing process

How a hearing works

The power and function of boards and tribunals

The role of First Nations and traditional knowledge

Tentative: EIA as resource planning. How EIA can function as a central planning tool: The example of Nunavut.

Ch. 8 Ginger Gibson, Lidsay Galbraith, and Alistair MacDonald

Ch. 11 D. Scott Slocombe, Lyn Hartley, and Meagan Noonan

Ch. 13 Ryan Barry, Sophia Granchincho, and Jeffery Rusk

EIA as the resource planning mechanism

A unique EIA system

March 21

Topic: Environmental Assessment Legislation (Ontario)

Presentation by a guest lecturer will be planned pending availability

Alternatively: Case Example; Dissecting Trans Mountain Expansion Project EIA (alternative project might be selected based on the class progress)

Readings:

Lindgren, R.D. Burgandy, D. 2010. Environmental Assessment in Ontario: Rhetoric vs. Reality, *Journal of Environmental Law and Practice*, 21, 279-303

(<http://s.cela.ca/files/766.LindgrenDunnFinal.pdf>)

A link to the act itself can be found at: <https://www.canada.ca/content/dam/iaac-acei/documents/mandate/president-transition-book-2019/overview-impact-assessment-act.pdf>

The link to the Ministry of the Environment and Climate Change (MOECC) page on environmental assessment for general reference:

<https://www.ontario.ca/page/environmental-assessments>

March 28

Group Presentation On Assignment 3; Open Discussion

April 04

Group Presentation On Assignment 3; Open Discussion

General Information about Your Term Work

Grading: Evaluation of assignments takes into account organization and structure, style and presentation, as well as research and content. Writing quality and content are both considered in grading. If you have a question or problem with the grade you receive, consult your TA or the professor. Your grade may be revised up or down based on the review.

Your assignments must have a plain title page with the title of your assignment, your name, course number, the date, your student number, and the instructor's name. Assignments should be submitted electronically (preferably in pdf) on Quercus.

Late Assignments: The late penalty is assessed as follows:

1 day 10%, 2 day 20%, 3 day 30%, 4 day 40%, 5 day 50%, 6 day and after 100%

Absences: If you need to miss a practical or term test for any legitimate reason, you must submit appropriate documentation within **three** business days of your absence. If the reason for your

absence is medical, an official UTSC medical note must be completed by a doctor who examined you while you were ill/injured (i.e. not after the fact). The medical note can be downloaded at:

http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf. Note that conditions ranked as mild or negligible will not be considered a valid excuse.

Missed term work: If a legitimate reason prevents you from submitting a piece of term work by its posted deadline, you must submit appropriate documentation within **three** business days of your absence. If the reason is medical, an official UTSC medical note must be completed by a doctor who examined you while you were ill/injured (i.e. not after the fact). The medical note can be downloaded at:

http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf

Note that conditions ranked as mild or negligible will not be considered a valid excuse.

Extensions: Requests for an extension on an assignment must be tendered in writing in advance of the due date. In instances of illness, an official UTSC medical note must be completed by a physician (see above). Other notes are not acceptable. Extensions are granted at the discretion of the Professor (and the TA), and may be granted for other significant emergencies.

Academic Misconduct and Academic Dishonesty will not be tolerated. Students engaging in misconduct or dishonest practices on exams, quizzes, or other assignments will be dealt with according to the guidelines established by the university.

Plagiarism: Please consult the University Calendar for a discussion and outline of the policy on plagiarism and academic integrity (also see proceeding section below). The sanctions can be severe. If, after reviewing the University policy, you are uncertain about what constitutes plagiarism, talk to your course instructor.

Academic Integrity: The University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters

(<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences.

Potential offences in papers and assignments include:

- Using someone else's ideas or words without appropriate acknowledgement
- Submitting your own work in more than one course without the permission of the instructor

- Making up sources or facts
- Obtaining or providing unauthorized assistance on any assignment.
- On tests and exams cheating includes:
- Using or possessing unauthorized aids
- Looking at someone else's answers during an exam or test
- Misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see <https://utsc.calendar.utoronto.ca/4-academic-integrity>).

Please consult the University Calendar for information about grade distribution and academic conduct.

Accessibility: Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. AccessAbility Services staff (located in Rm SW302, Science Wing) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Students are encouraged to review the Calendar for information regarding all services available on campus.

References for the sources of information and data used in the course:

- Auditing Association of Canada
- Canadian Environmental Assessment Agency
- Canadian Environmental Assessment Act, 2012
- Canadian Environmental Law Association
- Environmental Bill of Rights Registry
- Estrin, D. and Swaigen, J. 1993. Environment on Trial: A Guide to Ontario Environmental Law and Policy. 3rd ed. Toronto: Edmond Montgomery Publications Ltd.
- Hanna, Kevin S. (Ed.) 2009. Environmental Impact Assessment: Practice and Participation. Oxford University Press, Toronto. pp. 467
- Hanna, Kevin S. (Ed.) 2016. Environmental Impact Assessment: Practice and Participation. Oxford University Press, Toronto. pp. 488
- Impact Assessment and Project Appraisal (Journal)

- International Association for Impact Assessment (IAIA)
- Lindgren, R.D. Burgandy, D. 2010. Environmental Assessment in Ontario: Rhetoric vs. Reality, Journal of Environmental Law and Practice, 21, 279-303
- (<http://s.cela.ca/files/766.LindgrenDunnFinal.pdf>)
- Noble, B.F. 2010. Introduction to Environmental Impact assessment: A Guide to Principles and Practice. 2nd ed. Oxford University Press Canada
- Ontario Association for Impact Assessment
- Ontario Environmental Assessment Act
- Ontario, Environmental Assessments
- United Nations University, RMIT University, and United Nations Environment Programme (UNEP). Environmental Impact Assessment: Open Educational Resource. <http://eia.unu.edu>

Selected Projects (Reports available at the following links)

- **Sisson project Environmental Impact Assessment Report July 2013**
(<https://www.ceaa-acee.gc.ca/050/evaluations/document/93967?culture=en-CA>)
- **Basics of Environmental Assessment under CEEA 2012**
- <https://www.canada.ca/content/dam/iaac-acei/documents/mandate/president-transition-book-2019/overview-impact-assessment-act.pdf>
- <https://www.canada.ca/en/impact-assessment-agency/services/environmental-assessments/basics-environmental-assessment.html>
- Tazi Twé Hydroelectric Project, Environmental Assessment Report
- <https://www.ceaa-acee.gc.ca/050/evaluations/document/102077?culture=en-CA>
- Guidelines for the Preparation of an Environmental Impact Statement
- <https://iaac-aeic.gc.ca/050/evaluations/document/132308>