School of Environment, Resources and Sustainability, University of Waterloo

ERS 415 Environmental Assessment III
Advanced Environmental and Sustainability Assessment
Winter 2021

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Pre-requisites: ERS 215, ERS 315
Course organization

- 12 sessions (weekly except for Reading Week)
- this syllabus with the key information on the course agenda, assignments, schedule, readings, etc.
- the ERS 415 course Learn site
- guidance for each session posted as an announcement on Learn on Mondays of weeks for which there is a session
- lectures posted on the course Learn site (under the "content" tab) on Monday for each week there is a course session (not Reading Week); lectures will be divided into several relatively short narrated powerpoint decks for downloading and MP4 versions for online viewing
- readings for each session posted on Learn (also under the "content" tab)
- online class meetings for each session using the Learn virtual classroom: Thursdays 1:00-2:20pm (Waterloo time) for questions about and preparations for upcoming assignments, close attention to big issues of the session, conversations with guest experts, exchanges of ideas, and illustrative applications – participation is voluntary and recordings of all meetings will be posted
- no exams, tests or quizzes
- assignments centred on (i) three briefing papers and (ii) two notes to yourself (one at the beginning of the course and one at the end
- dropboxes (in Learn, under the "submit" tab) for each of the five assignments
- informal tutorial/discussion groups (about 15 members each, selected randomly) will be created after discussion with the class in the first class meeting; each group will have an online course Discussion Group Forum in Learn (click "discussions" under the "connect" tab) for voluntary use, discussing issues of course substance, approaches to assignments, and other course-related matters [potential formalization of discussion group engagement as an graded component of the course will be considered in first session meeting]
- course Questions and Answers (Q&A) Forum (in Learn as a "discussion" under the "connect" tab) all term for questions, and responses to questions, of potentially general interest about the substance of the course or about assignments and other course matters that are not addressed in the course Thursday meetings/discussion sessions
- course Recommendations Forum (also a "discussion") all term for suggested course adjustments and proposed other readings, videos, websites, etc.
- frequent online announcements, reminders, etc.

- access to the instructor and TAs for individual issues and questions: contact by email to get answers or set up a meeting

Roles and purposes of the course

As the final core course in the series for a Diploma in Environmental Assessment, ERS 415 is the culmination of a series of studies in the field. The course reviews and synthesizes material from the preceding pre-requisite courses on assessment principles and methodologies. The focus, however, is on the major current directions and trends in environmental and sustainability assessment – the most advanced thinking and applications in the field and the most pressing stresses today, especially in Canada. In particular, the course examines how new appreciation of complexities and uncertainties, and rising expectations for progress towards sustainability, are affecting assessment thinking and application in the face of competing pressures for more streamlined decision making.

While assessment theory, law and practice have improved over the years with greater practitioner experience and higher public expectations, they have also proved to have serious limitations. In Canada and elsewhere, most assessment processes have focused on individual proposed projects and have aimed to identify and mitigate their significant adverse effects. Some jurisdictions give serious consideration only to predicted negative effects on the biophysical environment. We have learned, however, that the most serious concerns arise from the combined social and biophysical effects of multiple undertakings, and public expectations are increasingly for projects to deliver positive contributions to lasting wellbeing rather than merely avoid serious negative effects.

Consequently, assessments have been pushed to be more comprehensive (covering the complex interactions of cumulative as well as individual social and biophysical effects), more ambitious (aiming for positive contributions to sustainability as well as mitigation serious adverse effects), more far-sighted (especially where climate changes issues are raised), more broadly applied (to strategic level undertakings as well as individual projects), more transparent and credible (including more open and responsive to public engagement and more forthright about the reasoning behind recommendations and decisions). Also, assessment in Canada has been affected by expanding understanding of complex socio-ecological systems, greater recognition of Indigenous rights, and evident tensions about the distribution of benefits and risks (e.g., from transboundary hydrocarbon pipelines).

The available approaches to addressing all of these considerations might make assessments better, but also more difficult, maybe more expensive and possibly slower as well. A major question for the future therefore is how to design and apply assessments more creatively so they can meet rising needs and expectations while also being manageable, affordable and timely.

In particular, project level assessments have tended to be too narrow in scope and too late in decision making to address overall concerns about the integrity of ecosystems and the wellbeing of communities or to introduce significantly more sensitive and sustainable

approaches. Moreover, conventional project-based assessments have tended to be inadequate means of ensuring properly integrated consideration of the interrelated ecological, social and economic factors that determine long term effects. The level of alignment and collaboration among the many different assessment authorities in Canada has also been disappointing.

The course will examine the nature, significance and application of broader approaches to assessment, and accompanying efficiency issues, with emphasis on Canadian cases in various jurisdictions, within and beyond the usual realm of assessment law. It will review the academic and professional literature on advanced assessment thinking and will emphasize critical examination of practical cases where advanced assessment initiatives have been proposed and/or undertaken. Participants in the course will be expected to become familiar with the main components of advanced "next generation" assessment, to see how they may be integrated in practical circumstances, and to show how this learning might be applied in actual cases.

As well the course will take advantage of the new federal impact assessment law and process, which came into effect in August 2019. While the federal process applies only to matters under federal jurisdiction, and is only in the early stages of implementation, it does promise some important elements of next generation assessment and many assessment cases and issues involve the overlapping interests and responsibilities of two or more jurisdictions (federal, provincial, Indigenous, territorial, even municipal). As a result, the scope of the federal law's implications is likely to extend across the country.

Readings

The course will rely heavily on individual readings. Most are available on the ERS 415 Learn website. Some other materials are available on the internet (see the schedule of events and readings). Users can login to UW Learn via http://learn.uwaterloo.ca/. Use your WatIAM/Quest username and password.

For every session there are more readings than you are likely to read. Focus on the ones that address matters you know least about. Skim the long reports and the documents on more familiar matters to get or renew a sense of the substance.

Course structure

Each session of the course will have three key components:

- an online lecture, typically in multiple reasonably short parts, posted on Learn (under the "content" tab) on Monday of the week of the session, as narrated slide decks, with MP4 versions for viewing and Powerpoint versions for downloading;
- readings posted on Learn (under the "content" tab); and
- a class meeting on Thursday of the week of the session (1-2:20 pm Waterloo time) to respond to questions related to the lecture, the readings, the assignments and other course matters; and various other components including conversations with guests, exchanges of ideas, and/or consideration of illustrative applications.

The ***class meetings*** will use the Virtual Classroom in Learn (under the "connect" tab). Participation in the class meetings is voluntary. Attendance will not be taken and no participation marks will be awarded. Each of the class meetings will be recorded and the recordings of all meetings will be posted on Learn.

Informal ***tutorial/discussion group***s (about 15 members each, selected randomly) each with an online course Discussion Group Forum (in Learn, click "discussions" under the "connect" tab), created for voluntary use, discussing issues of course substance, approaches to assignments, and other course-related matters.

A ***questions and answers discussion forum*** has been established in Learn (under the "connect" tab). If you have any questions throughout this course, you can ask them in the Thursday discussion sessions for an immediate response. However, you may also post questions on the questions and answers discussion forum and the professor or a TA will respond. If you have a personal question, please contact the professor or a TA by email.

A ***recommendations discussion forum*** has also been established in Learn (under the "connect" tab). Like many other newly online offerings, this version of ERS 415 is an experiment. We have attempted to design the course to deliver the same quality content and some opportunity for sharing ideas at a distance, without adding burdensome but minimally useful components. If you have any recommendations on how to make this course more successful, please provide suggestions in this forum. It is important for us to know what is working well and what needs improvement. Anonymous posts are allowed, as are comments on the recommendations of others.

The ***lecture/sessions schedule*** is set out below. The first three weeks provide an overview and background to the main issues now facing assessment in Canada and some big issue cases to which we will be referring throughout the course. The next two consider sustainability assessment practice and application issues. Sessions 6-11 will address particular areas of innovation. The final session will wrap up the course, consider how the various next generation assessment components may be adopted in the coming years, and discuss employment and other activities in the assessment field, broadly defined.

Summary of the course schedule

Session 1. week of January 11-17: Introduction to the course: scope, aims, participants, activities

Session 2. week of January 18-24: From the past to the future: the new federal assessment law and its place in the history of assessment in Canada and next generation assessment needs

Session 3. week of January 25-31: Big issue topics: climate change, non-renewable resource extraction, and the plans and projects of booming cities

Session 4. week of February 1-7: Sustainability assessment

Session 5. week of February 8-12: The Mackenzie Gas Project case

Family Day and Reading Week February 13-21

Session 6. week of February 22-28: Complex ecological, social and socio-ecological systems

Session 7. week of March 1-7: Uncertainty and precaution
Session 8. week of March 8-14: Cumulative effects, scenarios and alternatives
Class Break March 15-16
Session 9. week of March 17-21: Regional and strategic assessment
Session 10. week of March 22-28: Tiered regional/strategic and project assessment
Session 11. week of March 29-April 5: Cooperation, collaboration and engagement: multi-jurisdictional assessments including with Indigenous partners, public involvement, modern science and traditional knowledge
Session 12. week of April 5-11: Onwards from here: course summary, opportunities for learning, better application and implications for professional practice

Assignments and evaluations

Overview

Each student's work in the course will centre on five contributions:

1. note to yourself for the rest of this course, covering sessions 1-3 on key elements of next generation assessment, 1000 words, due Tuesday, 2 February 2021, 11:59 pm: 15%
2. briefing paper 1, covering especially sessions 4-5 on sustainability-based assessment, 1250 words, due Monday, 22 February 2021, 11:59 pm: 20%
3. briefing paper 2, covering especially sessions 6-8 on complexity, precaution and cumulative effects, 1500 words, due Wednesday, 17 March 2021, 11:59 pm: 25%
4. briefing paper 3, covering especially sessions 8-10 on cumulative effects, regional/strategic and tiered assessment, 1500 words, due Tuesday, 30 March 2021, 11:59 pm: 25%
5. note to yourself in 10 years, covering the whole course but especially sessions 11-12 on collaborative assessments and engagement, 1000 words, due Monday 19 April 2021, 11:59 pm: 15%

Late penalties will be assessed for notes and briefing paper submissions received after the due dates set out above. The standard penalty is 0.25% per day (15/20 one day late becomes 14.75/20).

There will be bonus marks for wit and humour.

The notes to yourself

Each of the two notes submissions (assignments 1 and 5)

- should demonstrate familiarity with the course lecture materials and readings for the relevant sessions but may also reference additional credible sources;
- must include proper references to all sources used (lectures, readings, etc.);
- should cover not only ideas but also the implications for practical application by assessment participants;
- should recognize the diversity of authorities, interests and perspectives involved in assessments and seek options that could be broadly acceptable to many if not all the participants as well as successful in contributing to lasting wellbeing;
- must be submitted in the course Learn dropbox with your name at the top;

- may include components in point form but must be comprehensible to outside readers and must respect the conventional rules of grammar; and
- should normally be single spaced and use a 12-point font.

The three briefing papers:
Submission of three briefing papers is required. All three are to be in the form of briefing notes with appendices, addressed to relevant individuals or organizations. The briefing paper assignments are meant

- to encourage integration of understanding gained from the readings, lectures and discussions, with particular attention to the implications of what you are learning for practical application, and
- to provide experience in a style of writing you are likely to use as a professional.

Each briefing paper should incorporate

- a professional approach to writing, using some form of basic briefing paper style (see below);
- proper bibliographic references to the lectures, written materials and other sources you've used;
- evidence of familiarity (though not necessarily agreement) with the key points raised in the readings, lectures and discussions, though you are also encouraged to incorporate material from other sources;
- analysis of the significance and practical implications (directly and indirectly) of these points or questions for other jurisdictions and undertakings subject to assessment;
- attention to the perspectives of different interests; and
- consideration of how to ensure assessment is both more effective (as a means of contributing to sustainability, contributing to learning, enhancing fairness and delivering credible decisions) and more efficient (recognizing the diversity of interests and the multitude of jurisdictions involved).

Be selective. Given the complexities involved (many different applications, players, issues, possible responses, etc.), you cannot discuss everything. In choosing what to include in the briefing papers give particular attention to what you consider to be most significant for improving assessment law, policy and practice. You will have to consider carefully what is and is not crucial here.

Be concise. These are short papers. Typically, the people who read briefing papers are very busy. They need the key information that is presented in a format designed to facilitate a quick grasp of the material, but that also includes necessary clarifications and evidence (or references to evidence) supporting the argument. Remember that you are, at least implicitly, making an argument. Remember also that these are scholarly papers, expected to meet the usual expectations for sound argument, proper references and reasonable adherence to the conventions of grammar, even if you choose to rely to some extent on bulleted lists of major points. In addition to the considerations noted above, grading of the papers will be based primarily on evidence of

- familiarity with (or mastery of) the concepts and sources, ideas and implications covered by the course;
- coherence (or brilliance) of argument; and
- clarity (or elegance) of writing.

Use (flexibly) some form of basic briefing paper style – the standard format for briefing notes prepared for a senior official. Briefing papers

- are designed to get key information across as quickly as possible;
- usually put a summary of the key conclusions and/or recommendations at the beginning;
- usually include two sections:
    - the main body of the note, which rarely exceeds two pages, and
    - one or more appendices setting out the key details on crucial matters, perhaps a table comparing options, a case example, an elaboration of key recommendations;
- use sub-headings, highlighted statements and other means of making the briefing paper easy to scan quickly and drawing the reader's attention to key messages

The main body of the briefing paper should include, more or less in the following order,

- the name of the person for whom the note has been prepared, the date, and the contact information for the author (in this case the name is sufficient);
- a title (what the briefing paper is addressing) and statement of purpose (e.g., for decisions)
- a summary of the key conclusions and/or recommendations;
- a brief outline of the key issue(s) being addressed;
- the basic background necessary for understanding the context and significance of the issue(s) and the need for a suitable response;
- the potentially reasonable response options;
- the evaluation: a concise overview of the persuasive evidence, arguments and suitable examples to justify your selections of the most important issues and opportunities and your analysis of the strengths and limitations of the options including the evidently best approach that you will be recommending (with references to details in the appendices); and
- conclusions setting out the recommended actions and the key analysis/argument supporting its adoption.

The appendices may include

- selected details and/or illustrative examples of how the recommended actions might be implemented;
- implications for other assessment authorities and interests;
- implications for overlapping issues, similar cases; and/or
- other material that you judge to be important for the intended reader.

The briefing paper must include a bibliography of the sources used and cited in the document. The word count limits for the briefing papers include both the main body and the appendices, but do not include the bibliography.

More information on briefing documents is available at, for example,

- https://www.queensu.ca/sps/sites/webpublish.queensu.ca.spswww/files/files/Resources/GovTalk/1_1Style%20Guide%20.pdf
- https://web.uvic.ca/~sdoyle/E302/Notes/WritingBriefingNotes.html
- http://www.writingforresults.net/Acro_3/templates.pdf

Many of the examples are limited to the basic two-page note, and do not mention appendices. Also they do not all use the standard format, and you can diverge from the standard too, if you think an adjusted approach will work better for the purposes.

The written submissions – specific requirements for the five submissions

The specific requirements for the five submissions are as follows:

1. note to yourself for the rest of this course, covering especially sessions 1-3 on assessment history and moving towards next generation assessment: 15%
    - identify the key elements of next generation assessment;
    - illustrate, with realistic examples, what implementing these key elements could entail for assessments involving one or more of the three big issue topics;
    - set out major implications for private sector proponents (individually and/or as sectors), governments (federal, provincial, territorial and Indigenous, as policy makers and as project assessment reviewers and decision makers), significantly impacted groups and interests (e.g., nearby municipalities and Indigenous communities, environmentalists, jobseekers, and advocates for the interests of future generations);
    - draw from the lecture material and the readings (and reliable other sources) and provide proper references;
    - use no more than 1000 words, excluding references; and
    - post in the appropriate Learn dropbox by 11:59 pm, Tuesday, 2 February 2021.

2. briefing paper 1, covering especially sessions 4-5 on sustainability-based assessment: 20%
    - recommend (with justification) how a sustainability-based approach to assessment should apply to an anticipated project assessment involving at least one of the three big issue areas discussed in session 3;
    - for the project assessment, you can choose any realistic project, except a hydrocarbon pipeline, that might be subject to assessment by a federal, provincial, territorial and/or Indigenous authority;
    - address the briefing paper to the authority or one of the authorities involved;
    - consider links to other next generation assessment components;
    - set out major implications for
        - the private sector proponents,
        - government assessment officials, reviewers and decision makers, and

        - other participants in the process, including most significantly impacted communities or sectors;
    - draw from the lecture material and the readings (and other reliable sources) and provide proper references;
    - use no more than 1250 words, excluding references; and
    - post in the appropriate Learn dropbox by 11:59 pm, Monday, 22 February 2021.

3. briefing paper 2, covering especially sessions 6-8 on complexity, precaution and cumulative effects: 25%
    - recommend (with justification) how due attention to complexity and precaution would best be achieved in a project assessment involving at least one of the three big issue areas discussed in session 3 (you can choose any realistic project, other than the one you chose for briefing paper 1, that might be subject to assessment by a federal, provincial, territorial and/or Indigenous authority);
    - examples of projects involving particularly important complexity, precaution and cumulative effects issues include the following:
        - initiation of a mining project (or reclamation of an abandoned mining site) involving wastes that are acid-generating, contain radioactive elements or contain toxic heavy metals;
        - offshore oil and/or gas drilling;
        - a new hydropower dam as a replacement for fossil-generated energy;
        - an extension of a road or rapid transit line in a major metropolitan area;
        - use of a small-scale nuclear reactor to generate electricity in a remote Indigenous community;
    - address the briefing paper to an authority other than the one you chose for briefing paper 1;
    - consider implications for implementation of the next generation assessment components in that project assessment (including implications for assessments and other deliberations and decision making beyond the project assessment);
    - draw from the lecture material and the readings (and other reliable sources) and provide proper references;
    - use no more than 1500 words, excluding references; and
    - post in the appropriate Learn dropbox by 11:59 pm, Wednesday, 17 March 2021.

4. briefing paper 3, covering especially sessions 8-10 on cumulative effects, regional/strategic and tiered assessment: 25%
    - pick a major policy-level or regional issue (e.g., anticipated new mining and related initiatives in a region such as the Ring of Fire, competing existing human uses and ecological values in a region such as the Bay of Fundy or the Bay of St. Lawrence, needs for policies and plans for just

transition from oil/gas and/or coal extraction to sustainable and economically viable alternatives, …);
    - recommend (with justification) how the options for sustainable futures for the relevant region or issue area would best be identified and assessed in light of past and potential cumulative effects and realistic future possibilities in a regional or strategic assessment that might be initiated and subject to assessment by a federal, provincial, territorial and/or Indigenous authority;
    - address the briefing paper to an assessment process participant other than a governing authority (e.g., a potentially affected municipality, Indigenous community, private sector company, consulting group, environmental or social justice organization, or body advocating for the interests of future generations);
    - draw from the lecture material and the readings (and other reliable sources) and provide proper references;
    - use no more than 1500 words, excluding references; and
    - post in the appropriate Learn dropbox by 11:59 pm, Tuesday, 30 March 2021.

5. note to yourself in 10 years, covering the whole course but especially sessions 11-12 on collaborative assessments and engagement: 15%
    - imagine you are employed in 2031 doing next generation assessment work for a Canadian assessment jurisdiction (federal, provincial, territorial, Indigenous or municipal) or for some other private sector or civil society organization;
    - draft a note to that version of you, advising on what your employer should advocate in an initiative to negotiate a collaborative assessment agreement that would
        - involve the federal government, at least one province, and a territorial and/or Indigenous government, and
        - contribute to the advancement of next generation assessment and sustainable wellbeing for all;
    - focus on the desirable contents of a collaborative arrangement that would be established in a general policy-level agreement anticipating application in future to establish collaborative regional/strategic and project-level assessments;
    - incorporate attention to the suite of next generation assessment components and the topics considered in more detail the course;
    - draw from the lecture material and the readings (and reliable other sources) and provide proper references;
    - use no more than 1000 words, excluding references; and
    - post in the appropriate Learn dropbox by 11:59 pm, Monday 19 April 2021.

Rubrics
The considerations noted above for both the notes and the briefing papers are incorporated in the following rubric for grading the papers, recognizing that the three rubric categories and components in them overlap and interact:

- familiarity with (or mastery of) the course material – the concepts and sources, ideas and implications covered by the lectures and readings (40%);
- coherence (or brilliance) of argument leading to conclusions, including insightful understanding, logical flow, emphasis on most significant points, effective use of evidence (with appreciation of its limitations), integration of ideas (recognizing conflicts and tensions), attention to implications, and appropriate credit to sources (40%); and
- clarity (and elegance) of writing, taking into consideration the structure and organization of thoughts and argument, effective linking of broad ideas to special illustrations or examples, proper grammar and syntax, concise presentation, and ease of understanding (20%).

As you proceed through the assignments, we will be looking for progressive integration of understanding from session to session – incorporating further ideas as you go but also seeing new material in light of what you have already learned (e.g., cumulative environmental assessment should be considered in light of expectations for sustainability-based assessments).

Note that late penalties will be assessed for notes and briefing paper submissions received after the due dates set out above. The standard penalty is 0.25% per day (15/20 one day late becomes 14.75/20). Also, there will be bonus marks for wit and humour.

Important UW policies and services on key course-related topics

Mental Health: The University of Waterloo, the Faculty of Environment and our Departments/Schools consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges – physical and/or emotional. *Help is available*. Mental health is a serious issue for everyone and can affect your ability to do your best work. Counselling Services is an inclusive, non-judgmental, and confidential space for anyone to seek support (http://www.uwaterloo.ca/counselling-services). They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.
Disabilities: AccessAbility Services (https://uwaterloo.ca/accessability-services/), located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.
Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. See http://www.uwaterloo.ca/academicintegrity/.

Every student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his or her actions. Please review the material provided by the university's Academic Integrity office specifically for students: http://uwaterloo.ca/academicintegrity/Students/index.html. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating), should visit the on-line tutorial at https://uwaterloo.ca/library/get-assignment-and-research-help/academic-integrity/academic-integrity-tutorial, and seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean.

When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline: https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71.

Within the Faculty of Environment, those committing academic offences (e.g. cheating, plagiarism) will be placed on disciplinary probation and will be subject to penalties that may include a grade of 0 on affected course elements, 0 on the course, suspension, and expulsion.

Grievances: Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy 70, Student Grievance: https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70.

Appeals: A decision made or penalty imposed under Policy 70 (Student Petitions and Grievances) on matters other than a petition, or Policy 71 (Student Discipline) may be appealed if there is a ground. A student who believes he or she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

Religious observances: A student needs to inform the instructor at the beginning of term if special accommodation needs to be made for religious observances that are not otherwise accounted for in the scheduling of classes and assignments.

Communications with the Instructor: All communication with students must be through either the student's University of Waterloo email account or via Learn. Any student who emails the instructor from a personal account will be requested to resend the email using a personal University of Waterloo email account.

Intellectual Property: Students should be aware that this course contains the intellectual property of their instructor, and/or the University of Waterloo. Intellectual property includes items such as: lecture content, spoken and written (and any audio/video recording thereof); lecture handouts, presentations, and other materials prepared for the course (e.g., PowerPoint slides); questions or solution sets from various types of assessments (e.g., assignments); and work protected by copyright (e.g., any work authored by the instructor or used by the instructor with permission of the copyright owner).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor, and/or the University of Waterloo for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor, or the University is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

Schedule of course sessions, issues and readings

Session 1. week of January 11-17: Introduction to the course

- course scope, aims, participants
- core elements of advanced (next generation) assessment and associated effectiveness, fairness and efficiency considerations
- course structure and assignments

Lecture posted: Monday, 11 January
Discussion session: Thursday, 14 January, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda:

- introductions
- discussion of the syllabus elements and assignments
- consideration of the role of the informal tutorial/discussion groups
    - initial plan for groups of about 15 members each, selected randomly, each with an online course Discussion Group Forum in Learn, for voluntary use, discussing issues of course substance, approaches to assignments, and other course-related matters
    - could be given more emphasis as a graded component with mandatory postings, expectations for comments and other exchanges, etc.
- consideration of the uses of future class meetings
    - could have more emphasis on guest experts (but only if there is a commitment to participate)
- other matters as raised by course participants

Session 2. week of January 18-24: From the past to the future – the new federal assessment law and its place in the history of assessment in Canada and next generation assessment needs

- the evolution of environmental assessment, especially in Canada
- federal, provincial, territorial and Indigenous law, policy and processes
- assessments under other laws and processes
- competing challenges (more effective, more efficient)
- positive steps, limitations and retreats
- the big issues for the next generation of assessment regimes: sustainability, complexity, cumulative effects, precaution, participation, cooperation/harmonization, links between strategic and project levels, dealing with long term effects (e.g., climate change), etc.
- the new federal impact assessment law and process

Lecture posted: Monday, 18 January
Discussion session: Thursday, 21 January, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. Recognizing the lessons from the history of assessment processes and practices in Canada so far,

- what have been the five most significant advances in the broad public interest, and
- what have been the five most significant barriers to better assessment?

2. What key changes need to be made to improve assessment practice and do you think you could persuade the other interests represented here today to support those changes?

Readings:

Robert B. Gibson, A. John Sinclair and Meinhard Doelle, "A next generation assessment framework for examining the IAA," chapter 2 in Meinhard Doelle and John Sinclair, eds., *The New Canadian Federal Impact Assessment Act* (Toronto: Irwin Law, forthcoming 2021) [a pre-publication version is on the course Learn site]

Paul Muldoon, Alastair Lucas, Robert B. Gibson, Peter Pickfield and Julie Williams, "Chapter 7: Environmental assessment," in *An Introduction to Environmental Law and Policy in Canada*, third edn. (Toronto: Emond-Montgomery, forthcoming 2020), pre-publication version on course Learn site.

Canada, *Impact Assessment Act,* Statutes of Canada 2019, c.28, s.1, https://laws-lois.justice.gc.ca/eng/acts/I-2.75/index.html, on course Learn site

Robert B. Gibson, "An initial evaluation of Canada's new sustainability-based *Impact Assessment Act*," *Journal of Environmental Law and Practice*, 33:1 (March 2020), pp.1-34. **[**pre-publication version is on course Learn site].

Recommended background readings – current Canadian assessment law:

Canada, Impact Assessment Agency of Canada, "Impact Assessment Process Overview," https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/impact-assessment-process-overview.html

Expert Panel for the Review of Federal Environmental Assessment Processes, *Building Common Ground: A New Vision for Impact Assessment in Canada* (Canada: MECC, April 2017), https://www.canada.ca/en/services/environment/conservation/assessments/environmental-reviews/environmental-assessment-processes/building-common-ground.html

Government of Ontario, *Environmental Assessment Act*, https://www.ontario.ca/laws/statute/90e18, on course UW Learn site.

Government of Ontario, "Environmental assessments," https://www.ontario.ca/page/environmental-assessments

Session 3. week of January 25-31: Big issue topics – climate change, non-renewable resource extraction, and the plans and projects of booming cities

- major issues and opportunities involving impact assessments in Canada in the last five years, including
  - how to incorporate serious attention to climate change in assessments of new projects (e.g., new hydrocarbon projects),
  - how to assess non-renewable resource extraction projects with necessarily limited life expectancies but potentially long-term cumulative effects (e.g., opening up new areas for extraction or adding to existing regional cumulative effects concerns), and

    - how to plan and assess growth-servicing projects in booming metropolitan areas (e.g., Ontario Greater Golden Horseshoe and BC's lower mainland).
- associated big issues:
    - how best to deal with multiple projects with cumulative and legacy effects
    - how to ensure effective consultation and accommodation of the interests of multiple communities with Indigenous/Aboriginal and treaty rights
    - how to ensure effective engagement of all authorities and stakeholders
    - how to harmonize responsibilities of overlapping jurisdictions
    - how to deal with international and inter-jurisdictional responsibilities, interregional implications, and regional/municipal requirements
    - how to link planning and assessment
    - how and where best to address alternatives
    - how to ensure reliable information and impartial decision making
    - how far to look ahead
    - how to do all this and still make timely decisions

Lecture posted: Monday, 25 January
Discussion session: Thursday, 28 January, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1: What are the three most important big issues to be addressed and objectives to be met in considering the future of bitumen production in Alberta and offshore drilling in the North Atlantic in overall policy/planning deliberations and in project assessments that must also consider implications for meeting Canada's climate change commitments?
2: What are the three most important big growth management issues to be addressed and objectives to be met in the Greater Golden Horseshoe and Greenbelt area and how should regional planning and project level environmental assessments be designed and used to contribute to addressing these considerations and meeting these objectives?

Readings

Meinhard Doelle, "Integrating climate change into EA: thoughts on federal law reform," *Environmental Law News,* Dalhousie University Blogs, 18 October 2016, on course UW Learn site.
Canada, "Prime Minister announces Canada's strengthened climate plan to protect the environment, create jobs, and support communities," Ottawa, 11 December 2020, https://pm.gc.ca/en/news/news-releases/2020/12/11/prime-minister-announces-canadas-strengthened-climate-plan-protect, on course UW Learn site.
Marc Lee and Harrian Mertins-Kirkwood, "New federal climate plan hindered by commitment to fossil fuel production," Vancouver, 15 December 2020, https://behindthenumbers.ca/2020/12/15/new-federal-climate-plan-hindered-by-commitment-to-fossil-fuel-production/, on course UW Learn site.
Ron Bousso, "Major new energy projects, like Shell's LNG Canada, don't gel with Paris targets: report," *Global News,* 5 September 2019, https://globalnews.ca/news/5862990/energy-projects-paris-agreement/, on course UW Learn site.

Robert B. Gibson, "Turning mines into bridges: gaining positive legacies from non-renewable resource projects," *Journal of Aboriginal Management* 15 (October 2014), pp.4-8; https://www.afoa.ca/afoadocs/L3/JAM_Preview/JAM_Issue15.pdf, on course UW Learn site.

Pauktuutit Inuit Women of Canada, *Ensuring the Safety and Well-Being of Inuit Women in the Resource Extraction Industry: A literature review* (Ottawa: Pauktuutit, 2020), online https://www.pauktuutit.ca/project/ensuring-the-safety-and-well-being-of-inuit-women-in-the-resource-extraction-industry/

Co-Designing the Active City, "Ontario's Growth Plan for the Greater Golden Horseshoe and Greenbelt Plan," and associated documents, https://participatoryplanning.ca/community/ontarios-growth-plan-greater-golden-horseshoe-and-greenbelt-plan-0

Friends of the Greenbelt, "Maps, Greenbelt Plan 2017," https://www.greenbelt.ca/maps

Neptis Foundation, "The big picture about land use and why it matters," (October 2013), http://www.neptis.org/publications/big-picture-about-land-use-and-why-it-matters; on course UW Learn site; full report at http://www.neptis.org/publications/implementing-growth-plan-greater-golden-horseshoe

Robert B. Gibson, "Sustainability and the Greenbelt," *Plan Canada* 51:3 (2011), pp.38-41, on course UW Learn site.

Meinhard Doelle, "The role of EA in achieving a sustainable energy future in Canada: a case study of the Lower Churchill Panel Review," *Journal of Environmental Law and Practice* 25: (2013), pp.113-133, on course UW Learn site.

Additional readings – Climate and energy issues in Canada

Andrew Green, "On Thin Ice: Meeting Canada's Paris Climate Commitments," *Journal of Environmental Law and Practice* 32:1 (2018), pp.99-135.

Jason MacLean, Meinhard Doelle, Chris Tollefson, "The Science, Law, and Politics of Canada's Pathways to Paris," *University of British Columbia Law Review* 52:1 (2019), pp.227-241.

Additional readings – Greater Golden Horseshoe and the Greenbelt:

Government of Ontario, *The Greenbelt Plan* (initially 2005, revised 2017), https://www.ontario.ca/document/greenbelt-plan-2017.

Government of Ontario *Places to Grow: Growth Plan for the Greater Golden Horseshoe* (initially 2006 revised 2017), https://www.ontario.ca/document/place-grow-growth-plan-greater-golden-horseshoe, on course UW Learn site.

David Crombie, et al., *Planning for Health, Prosperity and Growth: Expert Panel Report,* (2015), on course UW Learn site.

Session 4. week of February 1-7: Sustainability assessment

- international and Canadian developments
- the new sustainability-based federal *Impact Assessment Act*
- past case examples: Voisey's Bay mine assessment, Tulsequah Chief mine, Mining, Minerals and Sustainable Development project, Mackenzie Gas Project,

Ontario Power Authority Integrated Power Systems Plan, Kemess North Copper-Gold Mine Project, White's Point Quarry and Marine Terminal

Lecture posted: Monday, 1 February
Discussion session: Thursday, 4 February, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. What would be the three main advantages and the three main disadvantages or risks resulting from the new law that shifts the Canadian federal assessment processes from a focus on mitigating significant adverse environmental effects to a focus on delivering positive contributions to sustainability? Provide a practical example (historical or potential).
2. What would be the main characteristics of sustainability-based assessment that you would like to ensure are emphasized in guidance for application of the new sustainability-based assessment requirements in the new federal law (especially section 63(a))? Again, provide a practical example.

Readings:

Robert B. Gibson, Daniel D.P. McCarthy, Kiri Staples, Kira Cooper, Geneva Cloutis, Dayna Nadine Scott, Meinhard Doelle, A. John Sinclair and Jordan Bean, *Synthesis at the nexus of sustainability assessment, regional/strategic assessment and Indigenous partnerships,* report prepared with support from the *Knowledge Synthesis Grant Program: Informing Best Practices in Environmental and Impact Assessments* of the Social Sciences and Humanities Council of Canada and the Impact Assessment Agency of Canada, September 2020, pp.12-29, https://uwaterloo.ca/next-generation-environmental-assessment/research-contributions/dissertations-theses-monographs-and-major-reports, on course UW Learn site.

Robert B. Gibson, "Foundations: sustainability and the requirements for getting there," in Robert B. Gibson, editor, *Sustainability Assessment: Applications and Opportunities* (London: Routledge/Earthscan, 2017), pp. 1-15, on course UW Learn site.

Robert B. Gibson, "Criteria," in *Sustainability Assessment: Criteria and Processes* (London: Earthscan, 2005), chapter 5, pp.88-121, on course UW Learn site.

Robert B. Gibson, "Sustainability assessment in Canada," in Alan Bond, Angus Morrison-Saunders and Richard Howitt, editors, *Sustainability Assessment: Pluralism, practice and progress* (London: Routledge, 2013), pp. 167-183 (chapter 11), on course UW Learn site.

Canada, *Impact Assessment Act,* Statutes of Canada 2019, c.28, s.1, https://laws-lois.justice.gc.ca/eng/acts/I-2.75/index.html, on course UW Learn site (see readings for week 2), see especially section 63(a).

Robert B. Gibson, "An initial evaluation of Canada's new sustainability-based *Impact Assessment Act*," *Journal of Environmental Law and Practice*, 33:1 (March 2020), pp.1-34. **[**pre-publication version on course UW Learn site (see readings for week 2)].

Canada, Impact Assessment Agency of Canada (IAAC), *Practitioner's Guide to the Impact Assessment Act* (2019, 2020), https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act.html, especially sections

2.1 Guidance: Gender-based Analysis Plus in Impact Assessment,
2.2 Guidance: Considering the Extent to which a Project Contributes to Sustainability,
2.3 Framework: Implementation of the Sustainability Guidance

Canada, Impact Assessment Agency of Canada, "Fact Sheet: Gender-Based Analysis Plus in Impact Assessment" (2019), https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/gender-based-analysis-plus-impact-assessment-fact-sheet.html, on course UW Learn site.

Scan quickly:

Barry Dalal-Clayton and Barry Sadler, *Sustainability Appraisal: a sourcebook and reference guide to international experience* (London: Earthscan, 2014), encyclopaedic ebook in UW library.

Possible additional readings:

Theo Hacking and Peter Guthrie, "A framework for clarifying the meaning of Triple Bottom Line, Integrated and Sustainability Assessment," *Environmental Impact Assessment Review* 28 (2008), pp.73-89, on course UW Learn site.

MMSD, North American Regional Report, *Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities*; http://www.iied.org/mmsd/rrep/n_am.html; also on course UW Learn site.

Session 5. week of February 8-12: Sustainability assessment application – the Mackenzie Gas Project case

- the major innovations
- the limitations
- the responses
- implications for sustainability assessment under the new federal law

Lecture posted: Monday, 8 February
Discussion session: Thursday, 11 February, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. The Joint Review Panel in the Mackenzie Gas Project case set the Canadian standard so far in establishing and applying sustainability-based criteria in its deliberations. What were the most important strengths of the Panel's criteria and its application of these criteria?
2. The Mackenzie Panel's methods were not applied again (at least not in the same way) in formal Canadian environmental assessments under the old federal legislation, in part because sustainability-based assessment was not clearly mandated in law. The new federal *Impact Assessment Act* has adopted a sustainability-based approach, but the associated implementation guidance does not yet mention development and application of sustainability-based criteria. What lessons from the Mackenzie case should be included in the implementation guidance for developing and applying sustainability-based criteria in assessments under the new federal law?

Readings:

Robert B. Gibson, "Applications: from generic criteria to assessments in particular places and cases," in Robert B. Gibson, editor, *Sustainability Assessment: Applications and Opportunities* (London: Routledge/Earthscan, 2017), pp. 16-41, on course UW Learn site.

Robert B. Gibson, "Application of a contribution to sustainability test by the Joint Review Panel for the Canadian Mackenzie Gas Project," *Impact Assessment and Project Appraisal* 29:3 (September 2011), pp.231-244, on course UW Learn site.

Mackenzie Gas Project Joint Review Panel 2009. *Foundation for a Sustainable Northern Future* (December 2009), chapter 19 (skim the rest), full report (volumes 1 and 2) available at http://www.acee-ceaa.gc.ca/default.asp?lang=En&n=155701CE-1, also on course UW Learn site.

Recommended background documents (skim):

Governments of Canada and of the Northwest Territories, *Final Response to the Mackenzie Gas Project Joint Review Panel Report for the Mackenzie Gas Project* (November 2010), available at http://www.acee-ceaa.gc.ca/default.asp?lang=En&n=155701CE-1, also on course UW Learn site.

Robert B. Gibson, *Sustainability-based assessment criteria and associated frameworks for evaluations and decisions: theory, practice and implications for the Mackenzie Gas Project Review,* a report commissioned and published by the Joint Review Panel for the Mackenzie Gas Project, 26 January 2006, 67pp. Available at http://www.acee-ceaa.gc.ca/default.asp?lang=En&n=155701CE-1; also on course UW Learn site.

Family Day and Reading Week February 15-21

Session 6. week of February 22-29: Complex ecological, social and socio-ecological systems and their implications for assessments

- complex systems theory
- complex systems in resource management
- ecosystem-based approaches
- applications to socio-ecological systems
- basic implications for impact assessment research
- implications for environmental assessment process design

Lecture posted: Monday, 22 February

Discussion session: Thursday, 25 February, Learn Virtual Classroom 1-2:20 pm (recorded)

Discussion agenda (subject to revision):

Questions to consider

1. Assume that you are in charge of designing a planning and assessment process for rehabilitating Laurel Creek in Waterloo Region. What key considerations from an understanding of complex socio-ecological systems would you apply to the process

design and what would be the practical implications for regional planning and for assessment of individual undertakings?

2. As above but the planning and assessment process would be for roads and electric power infrastructure to serve proposed mines and existing communities including Indigenous communities in the Ring of Fire.

Readings:

James Kay and Eric Schneider, "Embracing complexity: the challenge of the ecosystem approach," *Alternatives Journal*, 20:3 (1994), pp.32-38; on course UW Learn site.

Convention on Biological Diversity (UNEP), "The Ecosystem Approach: Principles," (12 principles) available at http://www.cbd.int/ecosystem/principles.shtml, also on course UW Learn site.

Lorne A. Greig and Peter N, Duinker, "A proposal for further strengthening science in environmental impact assessment in Canada," *Impact Assessment and Project Appraisal* 29:2 (2011), pp.159-165.

Jianguo Liu, et al., "Complexity of Coupled Human and Natural Systems," *Science* 317 (14 September 2007), pp.1513-1516.

Aerin Jacob, "Cross-sectoral input for the potential role of science in Canada's environmental assessment," *Facets* 3 (2018), pp.512-529, doi:10.1139/facets-2017-0104

Miriam Diamond, *et al., Natural Heritage Systems in Urbanizing Settings: Sustainable Practices for the Oak Ridges Moraine* (City of Toronto and Save the Rouge Valley System Inc., July 2002), on course UW Learn site.

Carl Folke, Stephen R. Carpenter, Brian Walker, Marten Scheffer, Terry Chapin and Johan Rockström, "Resilience thinking: integrating resilience, adaptability and transformability," *Ecology and Society* 15:4 (2010) 20, http://www.ecologyandsociety.org/vol15/iss4/art20/, also on course UW Learn site.

Possible additional readings:

Lake Simcoe Region Conservation Authority, *The Uxbridge Brook Watershed Plan* (1997), on course UW Learn site; also available at http://www.lsrca.on.ca/pdf/reports/uxbridge_brook_watershed.pdf.

Gordon E. Beanlands and Peter N. Duinker, *An Ecological Framework for Environmental Impact Assessment in Canada* (Halifax: Institute for Resource and Environmental Studies, Dalhousie Univ., 1983), pp.1-10, on course UW Learn site.

Session 7. week of March 1-7: Complexity, uncertainty and precaution

- complexity and uncertainty: lessons from experience in Canada
- the role of scenario analysis
- risk and precaution (risk assessment versus/plus precautionary approach)
- adaptive design and management
- implications for advanced assessment, planning and design

Lecture posted: Monday, 1 March

Discussion session: Thursday, 4 March, Learn Virtual Classroom 1-2:20 pm (recorded)

Discussion agenda (subject to revision):
Questions to consider
1. What are the most important ethical and practical considerations in deciding how to organize an assessment of a proposal for a major controversial undertaking that involves considerable complexity and uncertainty – for example
    - opening a new area for mining rare earth elements that are needed for renewable energy technologies but also often involve radioactive or otherwise toxic wastes;
    - establishing a large commercial wind farming operation at the shore of one of the Great Lakes;
    - phasing out fossil-fuel powered vehicles in stages leading to a full ban in 2050;
    - replacing income taxes with revenue-equivalent taxes on resource extraction, consumer products and waste generation)?
2. How would you seek to gain broad agreement from a diversity of assessment authorities and interests on an approach to be taken to one of the case examples above? Presume the authorities and interests include private sector proponents (individually and/or as sectors), governments (federal, provincial, territorial and Indigenous, as policy makers and as project assessment reviewers and decision makers), significantly impacted groups and interests (e.g., nearby municipalities, Indigenous communities, environmentalists, jobseekers, and advocates for the interests of future generations);

Readings:
Mary O'Brien, "Alternatives assessment: part of operationalizing and institutionalizing the Precautionary Principle," paper prepared for the Wingspread Conference on "Implementing the Precautionary Principle," 23-25 January 1998, Racine, Wisconsin, on course UW Learn site.

Royal Society of Canada Expert Panel on the Future of Food Biotechnology, Conrad Brunk and Brian Ellis, co-chairs, *Elements of Precaution: Recommendations for the Regulation of Food Biotechnology in Canada* prepared at the request of Health Canada, Canadian Food Inspection Agency and Environment Canada (Ottawa: Royal Society of Canada, 2001), on course UW Learn site, also available at http://www.ic.gc.ca/app/oca/crd/dcmnt.do?id=65&lang=eng.

Peter Duinker and Lorne Greig, "Scenario analysis in environmental impact assessment: Improving explorations of the future," *Environmental Impact Assessment Review* 27:3 (2007), pp.206-219.

Charles Birchall and John Donihee, "Navigating Environmental Risk: When and How to Apply the Precautionary Principle," (Willms and Shier, 22 December 2017), on course UW Learn site.

Environmental Law Centre, University of Victoria, "The precautionary principle in Canada," (June 2010), http://www.elc.uvic.ca/associates/documents/Jun14.10-Precautionary-Principle-Backgrounder.pdf, also on course UW Learn site.

Session 8. week of March 8-14: Cumulative effects, scenarios and alternatives
- principles and challenges
- approaches at the project level and strategic level

- case examples: Fort Liard, oil sands and Fort McMurray, Mackenzie Gas Project and induced development, Puslinch gravel

Lecture posted: Monday, 8 March
Discussion session: Thursday, 11 March, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. What are the major advantages and limitations of considering cumulative effects in assessments of individual projects? Illustrate with an example (e.g., an individual hydrocarbon pipeline, or hydropower dam, or metal mine, or aggregates extraction project)?
2. What are the major advantages and limitations of considering cumulative effects in regional planning or other strategic level undertakings? Illustrate with an example (e.g., a regional plan for urban growth management, or a regional plan for a watershed with multiple current and potential development activities such as hydrocarbon exploration, mining, power projects, and/or forestry)?

Readings:

A. John Sinclair, Meinhard Doelle & Peter Duinker, "Looking Up, Down, Sideways: Reconceiving Cumulative Effects Assessment as a Mindset," *Environmental Impact Assessment Review* 62 (2016), pp.183-194, on course UW Learn site.

Chris Jones, Cumulative effects assessment: theoretical underpinnings and big problems," NRC Research Press (2016), https://www.nrcresearchpress.com/doi/full/10.1139/er-2015-0073?mobileUi=0#.Xg2Mget7k4o, on course UW Learn site.

CEAA, *Technical Guidance for Assessing Cumulative Environmental Effects under the Canadian Environmental Assessment Act, 2012 – draft* (December 2014), on course UW Learn site.

Mackenzie Gas Project Joint Review Panel 2009. *Foundation for a Sustainable Northern Future* (December 2009), especially chapter 19, available at http://www.acee-ceaa.gc.ca/default.asp?lang=En&n=155701CE-1; on course UW Learn site for week 5.

Petr Cizek and Shelagh Montgomery, *A Choice of Futures: cumulative impact scenarios of the Mackenzie Gas Project Scoping and Development* (Yellowknife: Canadian Arctic Resources Committee, October 2005), available at http://www.carc.org/pdfs/A%20CHOICE%20OF%20FUTURES%20final.pdf; and on course UW Learn site.

Peter N. Duinker and Lorne A. Greig, "The impotence of cumulative effects assessment in Canada: Ailments and ideas for redeployment," *Environmental Management* 37:2 (2006), pp.153-161; on course UW Learn site.

Possible additional readings:

Petr Cizek, et al., *Fort Liard Area Cumulative Impact Mapping Project: Technical Report* (Yellowknife: Canadian Arctic Resources Committee, May 2002); on course UW Learn site.

Lorne Greig and Peter Duinker, "Scenarios of future development in cumulative effects assessment: approaches for the Mackenzie Gas Project" (March 2007), on course UW Learn site.

Monique G. Dubé, "Cumulative effect assessment in Canada: a regional framework for aquatic ecosystems," *Environmental Impact Assessment Review* 23 (2003), pp.723-745, on course UW Learn site.

Douglas Baker and Darryl Shoemaker, *Environmental Assessment and Aggregate Extraction in Southern Ontario: the Puslinch Case,* Ontario case report no. 3 (Waterloo: Environmental Assessment and Planning in Ontario Study, ERS/UWaterloo, 1995), 33pp., on course UW Learn site.

Class Break March 15-16

Session 9. week of March 17-21: Regional and strategic assessment

- principles and the record of Canadian practice
- the relevant provisions of the new federal *Impact Assessment Act*
- case considerations: strategic assessment of climate change mitigation and regional assessment of development in the Ring of Fire

Lecture posted: Monday, 15 March
Discussion session: Thursday, 18 March, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. What would be the main desirable characteristics of a strategic undertaking and assessment under the new federal *Impact Assessment Act* concerning how climate change mitigation should be addressed in policy and project decision making, and what would be the main advantages and difficulties doing such assessments?
2. What would be the main desirable characteristics of a regional strategic undertaking and assessment under the new federal *Impact Assessment Act* concerning whether and how development of the Ring of Fire region of Ontario should pursued, and what would be the main advantages and difficulties doing such assessments?

Readings:

Robert B. Gibson, Daniel D.P. McCarthy, Kiri Staples, Kira Cooper, Geneva Cloutis, Dayna Nadine Scott, Meinhard Doelle, A. John Sinclair and Jordan Bean, *Synthesis at the nexus of sustainability assessment, regional/strategic assessment and Indigenous partnerships,* report prepared with support from the *Knowledge Synthesis Grant Program: Informing Best Practices in Environmental and Impact Assessments* of the Social Sciences and Humanities Council of Canada and the Impact Assessment Agency of Canada, September 2020, pp.30-48, https://uwaterloo.ca/next-generation-environmental-assessment/research-contributions/dissertations-theses-monographs-and-major-reports [on course UW Learn site with readings for sessions 4]

Canada, *Impact Assessment Act,* Statutes of Canada 2019, c.28, s.1, https://laws-lois.justice.gc.ca/eng/acts/I-2.75/index.html, on course UW Learn site for week 2, see sections 92-103.

Canada, Impact Assessment Agency of Canada, "Regional Assessment under the *Impact Assessment Act*," https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/impact-assessment-process-overview.html, on course UW Learn site.

IAIA, *Strategic Environmental Assessment Performance Criteria*; available at http://www.iaia.org/ go to "publications"; also on course UW Learn site.

Government of Canada, *The Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals* (2010); available at http://www.acee-ceaa.gc.ca/default.asp?lang=En&n=B3186435-1, also on course UW Learn site.

Robert B. Gibson, Hugh Benevides, Meinhard Doelle and Denis Kirchhoff, "Strengthening strategic environmental assessment in Canada: an evaluation of three basic options," *Journal of Environmental Law and Practice*, 20:3 (2010), pp.175-211, on course UW Learn site.

Strategic assessment of climate change:

See climate change readings from session 3, and

Robert B. Gibson, Karine Péloffy and Meinhard Doelle, "Key considerations for the strategic assessment of climate commitment implications," Paris to Project Research Initiative, 3 August 2018, on the course UW Learn site.

Meinhard Doelle, "Integrating Climate Change into Environmental ImpactAssessments: Key Design Elements," https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3273499, also on course UW Learn site.

Phillip Byer et al., "Climate Change in Impact Assessment: International Best Practice Principles" (International Association for Impact Assessment (IAIA), March 2018), on the course UW Learn site.

Intergovernmental Panel on Climate Change (IPCC), *Global Warming of 1.5 °C – Summary for Policymakers* (October 2018), on course UW Learn site.

Regional assessment for the Ring of Fire:

Ontario Ministry of Northern Development and Mines, Ring of Fire Secretariat, http://www.mndm.gov.on.ca/en/ring-fire-secretariat, and on the course UW Learn site.

Dayna Scott et al., "Formal Request to Minister Wilkinson for a Regional Assessment for the Ring of Fire region," letter 20 December 2019, on course UW Learn site.

Neil Powers, "Ring of Fire: homeland or frontier? (January 2018), https://1stories.wixsite.com/firststories/single-post/2018/01/09/Ring-of-Fire-Homeland-or-Frontier, on course UW Learn site.

Cheryl Chetkiewicz and Anastasia Lintner, *Getting it Right in Ontario's Far North: the need for a regional strategic environmental assessment in the Ring of Fire (Wawangajing)*, (World Conservation Society Canada and Ecojustice, May 2014), on course UW Learn site.

Session 10. week of March 22-28: Tiered regional/strategic and project assessment

- reasons for and theory of tiering strategic and project level assessments

- tiering experience in growth management planning: smart growth, identification and public assessment of alternative futures, use of scenarios, links to planning and assessment of particular projects
- interjurisdictional, regional/sectoral and multi-tier planning and assessment
- particular case examples from planning: regional growth management planning (Greater Golden Horseshoe planning, Ontario's Greenbelt and the Oak Ridges Moraine, Waterloo Region, Greater Vancouver Regional District and Capital Regional District in BC)
- potential tiering under federal assessment law: climate change, regional cumulative effects in the Ring of Fire and other places, etc.

Lecture posted: Monday, 22 March
Discussion session: Thursday, 25 March, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. How might linked strategic and project assessments facilitate more effective and more efficient sustainability-based strategic level assessment of a growth management or
2. How might linked strategic and project assessments facilitate more effective and more efficient sustainability-based regional strategic assessment of a sustainable futures plan for the Ring of Fire region of northern Ontario?

Readings:

Miguel Coutinho, Mark Bynoe, Sara Moreno Pires, Fernando Leao, Sérgio Bento & Carlos Borrego, "Impact assessment: tiering approaches for sustainable development planning and decision-making of a large infrastructure project," *Impact Assessment and Project Appraisal,* 37:6 (2019), pp.460-470.

Arts, J., Tomlinson, P. & Voogd, H., "Planning in tiers? Tiering as a way of linking SEA and EIA," in Barry Sadler, Jiri Dusik, Thomas Fischer, Maria Partidario, Rob Verheem, R. & Ralf Aschemann, eds., *Handbook of Strategic Environmental Assessment* (CRC Press, 2012), pp. 415-433.

Michelle Boyle, Robert B. Gibson and Deborah Curran, "If not here, then perhaps not anywhere: urban growth management as a tool for sustainability planning in British Columbia's Capital Regional District," *Local Environment* 9:1 (2004), pp.21-43; on course UW Learn site.

Region of Waterloo, Regional Official Plan (website also outlining the current review), https://www.regionofwaterloo.ca/en/doing-business/Regional_Official_Plan.aspx; also see the original growth management strategy: *Planning our Future: Regional Growth Management Strategy* (June 2003), https://www.regionofwaterloo.ca/en/resources/RegionalGrowthManagementStrategy.pdf; also on course UW Learn site.

See also the Greater Golden Horseshoe and Greenbelt readings from week 3.

Session 11. week of March 29-April 5: Cooperation, collaboration and engagement – multi-jurisdictional assessments including with Indigenous partners, public involvement, modern science and traditional knowledge

- inter-and multi-jurisdictional applications, project level and strategic level
    - challenges of wildly divergent laws, policies and practices
    - imperative for and barriers to cooperation and collaboration
    - case examples
- tools for cooperation and collaboration
    - scenario building, socio-ecological systems and public choices about alternatives
    - citizens and experts: combining conventional science and technical knowledge and public consultation, citizen experts, traditional knowledge
    - addressing equity effects, including gender equity
    - Indigenous rights, respect and reconciliation
- case examples: growth management in BC's Capital Regional District; community-based traditional expert monitoring in Lutsel 'Ke

Lecture posted: Monday, 29 March
Discussion session: Thursday, 1 April, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. What would be the five most important considerations in designing a collaborative joint assessment or set of assessments involving the Canadian government, a provincial government and Indigenous authorities representing one or more remote Indigenous communities? Assume that the assessment
    - would be sustainability-based,
    - would address anticipated proposals for mining and/or other non-renewable resource extraction and associated transportation and energy projects in a region that has not previously experienced much industrial development, and
    - could involve a combination of strategic, regional and/or major project assessments.

    Consider how the process(es) might be organized; who should be involved; what major difficulties could arise and how would you address them.
2. As above, but the assessment
    - would address anticipated potential expansion of industrial and other activities in a region that has already experienced many decades of industrial development.

Readings:
Robert B. Gibson, Daniel D.P. McCarthy, Kiri Staples, Kira Cooper, Geneva Cloutis, Dayna Nadine Scott, Meinhard Doelle, A. John Sinclair and Jordan Bean, *Synthesis at the nexus of sustainability assessment, regional/strategic assessment and Indigenous partnerships*, report prepared with support from the *Knowledge Synthesis Grant Program: Informing Best Practices in Environmental and Impact Assessments* of the Social Sciences and Humanities Council of Canada and the Impact Assessment Agency of Canada, September 2020, pp.49-83, https://uwaterloo.ca/next-generation-environmental-assessment/research-contributions/dissertations-theses-monographs-and-major-reports [on course UW Learn site with readings for sessions 4]
Multi-Interest Advisory Committee (MIAC), *Advice to the Expert Panel Reviewing Environmental Assessment Processes,* 9 December 2016, especially "Overarching

policy issues - Indigenous Rights," (pp.8-17), "Principles of meaningful public participation," (pp.41-48), "Cooperation in a multi-jurisdictional context," (pp.49-52), on course UW Learn site and posted at http://eareview-examenee.ca/what-weve-heard/multi-interest-advisory-committee/.

Patricia Fitzpatrick, P. and A.J. Sinclair, "Multi-jurisdictional environmental impact assessment: Canadian experiences," *EIA Review* 29:4 (2009), pp.252-260, on course UW Learn site.

Jessica Clogg, Gavin Smith, Deborah Carlson & Hannah Askew *Paddling Together: Co-Governance Models for Regional Cumulative Effects Management* (Vancouver: WCEL, 2019)

Arlene Kwasniak, "Environmental assessment, overlap, duplication, harmonization, equivalency, and substitution: interpretation, misinterpretation, and a path forward," *Journal of Environmental Law and Practice* 20:1 (Oct 2009), pp.1-35, on course UW Learn site.

Sharon Mascher, "Aligning Canadian Impact Assessment Processes with the Principles of UNDRIP," June 27, 2019, https://www.cigionline.org/articles/aligning-canadian-impact-assessment-processes-principles-undrip, also on course UW Learn site.

Rosie Simms et al., "Collaborative consent as a path to realizing UNDRIP," *Policy Options (January 2018),* https://policyoptions.irpp.org/magazines/january-2018/collaborative-consent-as-a-path-to-realizing-undrip/, also on course UW Learn site.

Isabelle Brideau, "The Duty to Consult Indigenous Peoples" (Library of Parliament, 12 June 2019), https://lop.parl.ca/sites/PublicWebsite/default/en_CA/ResearchPublications/201917E, on course UW Learn site.

Stephen Ellis, "Meaningful consideration? a review of traditional knowledge in environmental decision making," *Arctic* 58:1 (March 2005), on course UW Learn site.

Deborah Carver et al., *Interjurisdictional coordination of EA: challenges and opportunities arising from differences among provincial and territorial assessment requirements and processes* (Halifax: East Coast Environmental Law Association, November 2010), sections 1-4 and 7-8, on course UW Learn site.

Canada, Impact Assessment Agency of Canada, "Fact Sheet: What is Meaningful Public Participation?" https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/public-participation-impact-assessment-fact-sheet.html, also on course UW Learn site.

Canada, Impact Assessment Agency of Canada (IAAC), *Practitioner's Guide to the Impact Assessment Act* (2019), https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/practitioners-guide-impact-assessment-act.html, especially sections
3.2 Policy Context: Indigenous Participation in Impact Assessment
4.1 Guidance: Indigenous Participation in Impact Assessment
4.1 Policy Context: Public Participation in Impact Assessment
4.2 Guidance: Public Participation in Impact Assessment

IAIA, "Public participation: international best practice principles," (August 2006), http://www.iaia.org/publicdocuments/special-publications/SP4 web.pdf; also on course UW Learn site.

Session 12. week of April 5-11: Onwards from here – course summary, opportunities for learning, better application and implications for professional practice

- how assessment learning must continue
- how the various next generation assessment components may be adopted in coming years
- what opportunities are out there in the wide world of professional practice in assessment, broadly defined to go well beyond formally legislated assessment processes
- various pathways to getting employed and pursuing a career
- where the biggest challenges and most attractive opportunities lie

Lecture posted: Monday, 5 April
Discussion session: Thursday, 8 April, Learn Virtual Classroom 1-2:20 pm (recorded)
Discussion agenda (subject to revision):
Questions to consider

1. What would be the most important and interesting assessment improvement initiative(s) to be hired to work on for a future federal, provincial, territorial or Indigenous authority in Canada?
2. Beyond impact assessment law reform, what are the most significant needs (and attractive job opportunities) for improving the practice of planning, approving and implementing new undertakings in Canada and what are the most promising possible means of making these improvements?

Recommended readings:

Alan P. Diduck and A. John Sinclair, "A Learning-Focused Analysis of Canada's Impact Assessment Act," chapter 22 in Meinhard Doelle and John Sinclair, eds., *The New Canadian Federal Impact Assessment Act* (Toronto: Irwin Law, forthcoming 2021) [pre-publication version]

A. John Sinclair, Alan Diduck and Patricia Fitzpatrick, "Conceptualizing learning for sustainability through environmental assessment: critical reflections on 15 years of research," *Environmental Impact Assessment Review* 28 (2008), pp.415-428.

IAIA Guidelines Standard for IA Professionals, on course UW Learn site