

ERS 415 Environmental Assessment III
Advanced Environmental and Sustainability Assessment
Winter 2019

Time and location: Wednesday 2:30-5:20, AL105

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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 environmental assessment principles and methodologies. But it focuses on the major current directions and trends in environmental assessment – the most advanced thinking and applications in the field and the most pressing stresses today. In particular, the course examines how new appreciation of complexities and uncertainties and new commitments to sustainability are affecting the evolution of environmental assessment thinking and application and how they are coming up against competing pressures for more streamlined decision making.

While project-specific environmental assessments have improved over the years with greater practitioner experience and higher public expectations, they have also proved to have serious limitations as tools for advancing the environmental quality of decision making. In particular, project level environmental 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 communities or to introduce significantly more sensitive and sustainable approaches. Moreover, conventional project-based environmental 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.

In response, various authorities have initiated more comprehensive and anticipatory assessments. These have included efforts

- to recognize effects on ecological and socio-ecological systems, rather than just individual receptors, and to respect the complexities of these systems;
- to identify and evaluate the cumulative effects of multiple projects;
- to consider ecological and community wellbeing factors more rigorously in land use planning and other area-based deliberations;
- to incorporate environmental considerations in evaluations of future options in whole sectors (e.g. mining, agriculture, energy);
- to give greater attention to uncertainties and to the associated need for precaution and public choice;

- to apply environmental assessment principles more generally at the strategic level of policies, programmes and plans, with particular attention to providing guidance for project-level undertakings; and
- to specify and apply sustainability-centred criteria for decision making in conventional project and strategic level environmental assessments and in an expanding range of other applications in the private sector, civil society organizations, multi-stakeholder initiatives, etc.

Together, these changes suggest the beginnings of a considerably more ambitious and promising, though also challenging, era in assessment.

At the same time, environmental assessment processes have been criticized and resisted as an apparent barrier to efficient decision making on undertakings that powerful interests consider desirable. Some jurisdictions, including Canada at the federal level, have weakened their assessment requirements. While some of this may be explained as a cover for opposition to the substantive requirements of good assessment, there are evident needs for greater consistency and better coordination of the many assessment regimes in Canada.

The course will examine the nature, significance and application of these broader approaches to assessment, and accompanying efficiency issues, with emphasis on Canadian cases in various jurisdictions, within and beyond the usual realm of environmental 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 environmental assessment, to see how they may be integrated in practical circumstances, and to show how this learning might be applied in actual cases.

Text and readings

The sustainability assessment discussions will draw chiefly from two texts:

Robert B. Gibson (with Selma Hassan, Susan Holtz, James Tansey and Graham Whitelaw), *Sustainability Assessment: criteria and processes* (London: Earthscan, 2005); and

Robert B. Gibson, editor, *Sustainability Assessment: applications and opportunities* (London: Routledge/Earthscan, 2017).

Beyond that, the course will rely heavily on web-based sources (see the schedule of events and readings). Many of the readings will be available on the course UW Learn website. Users can login to UW Learn via <http://learn.uwaterloo.ca/>. Use your WatIAM/Quest username and password.

Some of the readings on the course UW Learn site are long reports. You are not expected to read them through. Skim as needed.

Course structure, assignments and evaluation

After week one, each weekly session of the course will be divided into two parts, a lecture for the first half and discussion of weekly questions related to the lecture and the readings considered from the perspectives of various interests and the implications for various practical applications.

The lecture schedule is set out below. The first three weeks provide an overview and background to the main issues now facing environmental assessment in Canada and a couple of illustrative cases to which we will be referring throughout the course. The next two consider sustainability assessment practice and issues and a third case that we will also be discussing in subsequent classes. Sessions 6-11 will address particular areas of innovation. The final session will be about employment and other activities in the environmental assessment field, broadly defined.

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

- participation in the weekly discussions, including participation in leading one of the weekly discussions;
- two packages of class preparation notes to be submitted each week except the first week and the last week – to be graded as one set of notes for weeks 2-6 and a second for weeks 7-11;
- two papers – one generally covering weeks 1-5 and one covering the whole course but with emphasis on weeks 6-11.

The evaluations will be weighted as follows:

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| • participation weeks 1-12 | 20% (includes panel presentation) |
| • class preparation notes weeks 2-6 | 15% |
| • class preparation notes weeks 7-11 | 15% |
| • paper 1 | 20% |
| • paper 2 | 30% |

Participation and presentation

Each week, the second half of the class will be devoted to discussion of two core questions related to the week's topic. The questions are included below in the section on the weekly topics, readings and questions. The discussions will consider implications for environmental assessment law and policy reform in Canada and implications for practical application in current or anticipated cases. As well, the discussions should be useful in preparing for the two papers.

In weeks 2, 11 and 12, the discussions will be led by the course instructor and teaching assistants. In weeks 3-10, the discussions will be initiated by student panels, one panel for four or five members for each discussion question. All other students in the class will have assignments as supporting commentators. The course instructor and/or teaching assistants will be the moderators of these discussions.

To initiate the discussion of a question, each of the four or five panelists will make a brief opening statement (maximum three minutes each) setting out what are in his or her view

the most important matters and how they should be addressed as the answer to the question. Each panelist will be assigned to represent the interests of one of the following four categories, each with two sub-categories:

1. proponents: 1.1 public sector proponents and 1.2 private sector proponents
2. governments: 2.1 federal government and 2.2 provincial and territorial governments
3. other governments: 3.1 Aboriginal governments and 3.2 municipal governments (and related community organizations)
4. non-government organizations: 4.1 NGOs focusing on ecological and social justice issues and 4.2 NGOs focusing on the interests of future generations.

The panelists will be expected play their roles professionally and realistically. Their positions should draw from the readings and from material discussed in previous weeks (and previous courses) as well as from general knowledge of the key concerns of the interests being represented. The positions presented should be well informed and enlightened.

Each panelist will be supported by roughly a quarter of the rest of the class, who will act as a team of commentators with assigned perspectives. After the opening presentations, the floor will be open to additional contributions from the groups of commentators. *In each discussion, we will aim to see what level of agreement can be reached among the different (but enlightened) interests.*

To facilitate all this, the class has been divided into eight groups (A-H) that have been given rotating assignments through weeks 2-11. See the document “415w16 participant assignments” on the course UW Learn site. The teams have eight or nine members and each team will be the sets of panelists for one of the weeks 3-10. For the weeks when they are not the panelists, each team has been assigned to think from the perspective of an interest from one of the four categories (each of the categories has been subdivided into two sub categories so there are somewhat different interests for each of the eight groups). Each week, the group members will take on a different role.

The assignment of individuals to groups and panel presentation weeks and questions will be announced at the first class and posted on the course UW Learn site (the “415w19 participant assignments” document mentioned above). The assignment of individuals to rotating interest perspectives for weeks 2-10 will also be announced at the first class and posted on the course UW Learn site (same document).

One week prior to the presentation week, students in each panel should meet with the instructor or a teaching assistant during the class break at the session to divide out representation responsibilities. Beyond that, there is no expectation that the panel members or the teams of commentators will need to meet to coordinate positions. The contributions of the panelists and commenting participants will be graded individually.

Recognizing the constraints of a large class, each student is encouraged and expected to participate thoughtfully in the class discussions as well as the panel presentations. Evaluation of participation will be based on the quality as well as the extent of

contributions. Evaluation of participation quality will take the following criteria into account:

- understanding of the concepts and issues introduced and insight into their practical implications;
- evident familiarity with the readings;
- careful listening and thoughtful reflection before making comments;
- communication skills (clear, constructive, etc.);
- synthesis, integration and drawing connections between and among the immediate subject matter and ideas, issues and insights from the course materials or elsewhere; and
- accuracy and creativity in illustrating implications.

There will be bonus marks for humour.

The class preparation notes

Each week from week 2 to week 11, inclusive, each participant must submit a one-page set of class preparation notes. The notes

- should address the questions posed for the week, but should be based on the course readings for that week (and any additional readings or other research that the student may choose to consult);
- should anticipate and be useful for participation in the class discussion;
- should not be limited to the perspective you are to represent in class that week (except for the week when you are a panelist*);
- must be prepared before the class and printed out, though you are encouraged to add further annotations in pen or pencil during the class (e.g. to include points from the lecture and discussions);
- should normally be in point form;
- should demonstrate familiarity with at least two of the week's readings
- must include proper references to your sources;
- should normally be one page, single spaced; and
- must be submitted at the end of the class on the relevant week (if you cannot attend the class, email the course notes to the instructor (rbgibson@uwaterloo.ca) before the class begins and provide a paper copy to Bob Gibson's mail slot in the ERS mail room, EV2 room 2028, as soon as possible thereafter).

* For the week you are assigned to make a panel presentation, the submitted notes will be your panel presentation notes. These can be more than one page, may or may not be in point form, and still must include proper references to your sources.

The class preparation notes will be graded in two packages: weeks 2-6 and weeks 7-11. Late notes submissions will be accepted for two days following the class when submission was due, but will be treated as worth 0.50% of notes submitted on time.

The two briefing papers:

Submission of two papers is required. Both are to be in the form of briefing notes and appendices to relevant individuals or organizations. These writing assignments have two purposes. The main purpose is 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. The second purpose is to provide experience in a style of writing you are likely to use as a professional.

Both papers should incorporate

- a professional approach to writing;
- proper bibliographic references to written materials, or 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) and more efficient (recognizing the diversity of interests and the multitude of jurisdictions involved).

Your papers should draw from the lectures, readings and discussions, and from any material you dig up that is relevant to the discussion. Always provide proper references to your sources.

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.

Late penalties will be assessed for papers received after the due dates set out above. The standard penalty is 0.5% per day (15/20 one day late becomes 14.5/20).

Briefing paper #1

The first paper focuses mostly on ERS 415 materials from weeks 1-5. It is a briefing paper for the federal minister of Environment and Climate Change, Catherine McKenna. The new government has made commitments to undertake a comprehensive review of federal environmental assessment processes, and Minister McKenna is likely to be chiefly responsible for the review. However, for the purposes of this assignment, we will assume that the minister believes improving federal processes will not be enough and wishes to complement the federal review with a national initiative. Accordingly, we will assume that she is developing a proposal for a multi-stakeholder national standard setting process to be managed by the Canadian Standards Association (CSA). The mandate of the process would be to establish a best practices assessment standard for all of Canada – covering the processes of the federal government, the provinces, the three northern territories and Aboriginal authorities with assessment processes established under land claim agreements.

Your job in this briefing paper is to assist the minister in specifying the mandate for the CSA standard setting exercise. In the briefing paper, you are expected to

- outline the main big issues that should be addressed in a best practices environmental assessment law and policy standard for Canada;
- identify the major features of leading-edge assessment thinking that should be incorporated in the new standard to ensure that assessment work (broadly defined to include assessment-like processes under other legislation) contributes to sustainability in ways that are effective, efficient and fair and recognize the different challenges and contexts of the various jurisdictions involved; and
- provide persuasive evidence and arguments to establish that your selections actually do identify the most important big issues and major features.

Among the assessment law and policy topics that you may wish to consider are the categories of undertakings that should be subject to assessment requirements, the main assessment requirements that ought to be imposed on the proponents of such undertakings, and the nature of review and follow-up processes, including how the participation of various stakeholders, including members of the public, could be strengthened. Where you can so do briefly, include examples of problems or solutions from past experience. You may include some general attention to the broad issues that will be covered in more detail in future weeks of this course, but specifics are not expected (they will be addressed in the second paper).

And one final hint: Ms. McKenna is the minister for environment *and climate change*. You might find it useful and appropriate to suggest that environmental assessment could be a useful tool to encourage attention and responses to climate change issues.

Requirements:

The first briefing paper is to be no longer than 2000 words, not including references. You should use (flexibly) the standard format for briefing a minister or other senior official, which is a briefing note, with a main body that is usually not more than two pages, plus appendices on the key details. Some examples of real briefing notes (mostly

without the appendices) are posted on the course UW Learn site along with some generic briefing note information from Rob Parkinson at <http://writingforresults.net/>. The examples 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. But remember that real ministers will rarely have time to read (skim) more than two pages.

The paper is to be submitted electronically to the course Learn website at or before midnight on Friday, February 15.

Briefing paper # 2: details on major issues for briefing note appendices

The second briefing paper will cover material from the whole course, but focus on the material for weeks 6-11. This note is to be prepared for the multi-stakeholder committee established by the CSA under the mandate you helped to draft through briefing paper #1. For the purposes of the assignment, we will assume that the CSA discussions have been going on for some time and that considerable progress has been made in establishing the main characteristics and components of a best practice standard. However, some members of the committee are having difficulty imagining how it would work in practice.

Your job in this second briefing paper is to provide an illustration of how an assessment regime that meets the best practice standard might work in a tiered pair of real (or at least realistic) assessment undertakings. In particular, you will

- identify two undertakings, one at the project level and one at the strategic level (a plan, policy or program, etc.) that are in a tiered relationship – for example, the higher tier undertaking could be a strategic level plan governing future land use activities in a region of northern Ontario and the lower tier project-level undertaking could be a particular proposed mine or hydroelectric facility in the region covered by the land use plan (further examples will be discussed in class);
- outline how the two undertakings would be subjected to environmental assessment requirements (or the equivalent under planning or other legislation) in ways that would ensure that the strategic level undertaking could provide credible and authoritative guidance for the planning and assessment of the individual project;
- incorporate illustrations of how the paired assessments would serve to integrate the concerns and powers of the relevant government authorities (federal, provincial, territorial and/or Aboriginal); serve sustainability objectives; respect the complexity of ecological, social and socio-ecological systems; provide effective and efficient attention to cumulative effects; and incorporate effective public engagement; and
- summarize the expected benefits of the approach you have illustrated, and note important challenges, risks and uncertainties.

For this briefing paper, picking a suitable pair of related strategic and project level undertakings to discuss in the paper is crucial. The strategic undertaking – the development of a major policy or plan or program, or a regional or sectoral cumulative effects study or the equivalent – will be one that is expected to inform the planning and assessment of certain kinds of projects (or more specific program undertakings), guiding

or directing at least some important aspects of how the particular project-scale undertakings are to be conceived, designed and approved. The second undertaking is a proposed project or more specific program that will be informed, guided and/or directed by your chosen strategic level undertaking. Each undertaking must have environmental significance, broadly defined, and the pair will be most suitable if they can illustrate application of the advanced assessment ideas discussed in the course.

You can use paired undertakings related to the Ring of Fire mining and associated potential developments in northern Ontario, or related to the infrastructure and regional growth management planning initiatives and particular transit or other projects in the Greater Golden Horseshoe/Greenbelt area in southern Ontario, or any other actual or realistic pair of strategic and project-level undertakings. Some other illustrative examples of possible pairs of strategic/project undertakings are listed in the document “415w19 paired case examples” on the course UW Learn site. You may also propose other options.

You may wish to discuss your choice of paired undertakings with the course instructor or the teaching assistants well before starting the assignment. In your descriptions of the undertakings, you will need to provide basic information on the undertaking’s purpose, the alternatives to be considered, and the main issues likely to be raised. And you will need to set out the expected connections between the two undertakings, especially how the strategic level undertaking might guide or direct the more specific undertaking (or important aspects of it). Your focus, however, is on incorporating all the main requirements for addressing the weeks 6-11 issues, and showing how the planning, evaluation, approval and implementation of your pair of undertakings ought to be linked, what benefits that linking should deliver and what problems will have to be faced.

Requirements:

This second briefing paper is to be structured according to the same basic principles as your initial briefing note; however, you now have a larger and more diverse multi-stakeholder audience. The paper should be no longer than 2500 words, not including references. It is to be submitted electronically to the course Learn website before midnight on Friday, April 5.

Summary of the course schedule

1. January 10 – Introduction to the course
2. January 17 – From the past to the future: a history of uneven progress, innovations, retreats and rising needs and an agenda for next generation environmental assessment
3. January 24 – The Ring of Fire and the Greater Golden Horseshoe and Greenbelt – two cases of assessment complexities
4. January 31 – Sustainability assessment
5. February 7 – Sustainability assessment application: the Mackenzie Gas Project case
6. February 14 – Complex ecological, social and socio-ecological systems
- Reading Week – February 21 – NO CLASS or NO OFFICE HOURS
7. February 28 – Complexity, uncertainty and precaution
8. March 7 – Cumulative effects assessment

9. March 14 – Strategic and regional assessment
10. March 21 – Tiered strategic and project assessment
11. March 28 – Cooperation and collaboration: multi-jurisdictional assessments, scenarios and alternatives, public involvement, modern science and traditional knowledge
12. April 4 – Course summary: Opportunities for application and implications for professional practice

Schedule of course sessions, issues and readings

1. January 10 Introduction to course

- course scope, aims, participants
- core elements of advanced environmental assessment and associated efficiency issues
- course structure and assignments

2. January 17 From the past to the future: a history of uneven progress, innovations, retreats and rising needs and an agenda for next generation environmental assessment

- the evolution of environmental assessment, esp. in Canada
- federal, provincial and territorial processes and legislation
- 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, harmonization, links between strategic and project levels, etc.

Readings:

Robert B. Gibson, *Sustainability Assessment*, chapter 1, "Beginnings: stumbling towards sustainability assessment" and chapter 2, "Thirty-some years of environmental assessment".

Robert B. Gibson and Kevin S. Hanna, "Progress and uncertainty: the evolution of federal environmental assessment in Canada," in Kevin S. Hanna, editor, *Environmental Impact Assessment: Participation and Practice*, third edition (Toronto: Oxford University Press, 2016); on course UW Learn site.

Robert B. Gibson, Meinhard Doelle and A. John Sinclair, "Fulfilling the promise: basic components of next generation environmental assessment, *Journal of Environmental Law and Practice*, 27 (forthcoming 2016); on course UW Learn site.

Robert B. Gibson, "The components of basic and advanced assessment laws," Table 10.1 of "Environmental assessment," chapter 10 in Paul Muldoon, Alastair Lucas, Robert B. Gibson, Julie Williams and Peter Pickfield, *An Introduction to Environmental Law and Policy in Canada* 2nd edition (Toronto: Emond Montgomery Publications, 2015), pp.232-233; on course UW Learn site.

Robert B. Gibson, "In full retreat: the Canadian government's new environmental assessment law undoes decades of progress," *Impact Assessment and Project Appraisal* 30:3 (2012), pp.179-188; on course UW Learn site.

Anonymous, "Commercial pressures accelerate moves to narrow focus of CEAA and streamline environmental assessment process," *Canadian Environmental Regulation and Compliance News* 22:12 (December 2011), p.1; 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.

Arlene Kwasiak, "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.

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

Recommended background readings:

Government of Canada, *Canadian Environmental Assessment Act 2012*; on course UW Learn site.

Meinhard Doelle, "CEAA 2012: the end of federal EA as we know it?" *Journal of Environmental Law and Practice* 24 (2013), pp.1-17; on course UW Learn site.

Government of Canada, *The Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*; on course UW Learn site.

Government of Ontario, *Environmental Assessment Act*; on course UW Learn site.

International Association for Impact Assessment, "Principles of Environmental Impact Assessment Best Practice," (January 1999); www.iaia.org/ go to "publications"; also on course UW Learn site.

Elvis Au, International Association for Impact Assessment, "Impact assessment, sound business operation, and corporate responsibility for sustainable development," IAIA (May 2002); on course UW Learn site.

Other additional sources:

Canadian Environmental Assessment Agency, "Federal-provincial/territorial environmental assessment agreements";
<http://www.ceaa.gc.ca/default.asp?lang=En&n=CA03020B-1>

Government of Ontario, "Environmental assessments,"
<https://www.ontario.ca/environment-and-energy/environmental-assessments>

Discussion questions

Q2a: What aspects or effects of environmental assessment in Canada so far have been most beneficial to the public interest, and what further steps would be most desirable?

[Panelists' and commentators' responses should consider the public interest, but from the perspective of the interests they are representing.]

Q2b: What deficiencies or limitations of environmental assessment in Canada so far have been most problematic for the public interests, at least from the perspective of the interests you are representing, and what would you want done about them?

[Panelists' and commentators' responses should consider the public interest, but from the perspective of the interests they are representing.]

3. January 24 The Ring of Fire and the Greater Golden Horseshoe and Greenbelt – two cases of assessment complexities

- multiple mining projects and associated infrastructure in the remote and pristine Ring of Fire region of northern Ontario (big issues include how best to deal with multiple projects with cumulative effects, and legacy effects, how to ensure effective consultation and accommodation of the interests of multiple communities with Aboriginal and treaty rights, how to harmonize responsibilities of overlapping jurisdictions, how to ensure effective engagement of all stakeholders, etc.)
- urban and suburban plans and projects to accommodate rising population, expectations and associated demands for housing, transportation and other services in the Greater Golden Horseshoe and Greenbelt area in southern Ontario, including projects that are subject to environmental assessment but arise through regional planning to meet municipal and provincial objectives (big issues include how to link planning and assessment, where best to address alternatives, how far to look ahead, how to deal for interregional implications and effects and how to integrate provincial and regional/municipal requirements, etc.)

Readings, etc. – Ring of Fire:

Ontario Ministry of Northern Development and Mines, Ring of Fire Secretariat, <http://www.mndm.gov.on.ca/en/ring-fire-secretariat>, see especially linked pages on “Environmental Assessment,” and “First Nations Partnerships” both also on the course UW Learn site.

Mattawa First Nations, “Ring of Fire: your land is at risk,” Four Rivers Information Newsletter, Fall 2011, www.matawa.on.ca/upload/documents/4riverseanewsletter_final.pdf, also on course UW Learn site.

Peter Gorrie, “The Ring of Fire,” *Ontario Nature Magazine*, Fall 2010, <http://onnaturemagazine.com/the-ring-of-fire.html/3>; also on course UW Learn site.

Mushkeg Media (ROF) Inc. and ABF Ring of Fire Inc., Ring of Fire TV series and podcasts, <http://ringoffiretv.ca>

Heather Scoffield, “‘Ring of Fire’ mining prospect empowers some of Canada’s most downtrodden First Nations,” *Vancouver Sun*, 20 December 2012, <http://www.vancouversun.com/business/Ring+Fire+mining+prospect+empowers+some+Canada+most+downtrodden+First+Nations/7727160/story.html>; also on course UW Learn site.

- Rachelle Younglai, "Hopes for Ontario's Ring of Fire doused," *The Globe and Mail* (21 October 2014), <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/hopes-for-ontarios-ring-of-fire-doused-as-mining-companies-grow-wary/article21216171/>; also 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), <https://www.ecojustice.ca/publications/getting-it-right-in-ontarios-far-north-the-need-for-a-regional-strategic-environmental-assessment-in-the-ring-of-fire-wawagajing>, on course UW Learn site.
- Cliffs Ferroalloys, *Amended Terms of Reference for Cliffs Chromite Project Individual Environmental Assessment*, November 2012; on course UW Learn site. See also <http://www.ontario.ca/environment-and-energy/cliffs-chromite-project>.
- Noront Resources, *Eagle's Nest Project, Draft Federal/Provincial Environmental Impact Statement/Environmental Assessment Report – Executive Summary* (December 2013), <http://norontresource.wpengine.com/wp-content/uploads/2014/10/pdf/Eagles%20Nest%20Project%20Draft%20EIS%20EA/VOLUME%201%20-%20Executive%20Summary.pdf>, on course UW Learn site.
- Readings – Greater Golden Horseshoe and the Greenbelt:*
- David Crombie, Keith Currie, Rae Horst, John MacKenzie, Leith Moore and Debbie Zimmerman, *Planning for Health, Prosperity and Growth in the Greater Golden Horseshoe: 2015-2041* (Toronto: OMMAH, 2015), on course UW Learn site, <http://www.mah.gov.on.ca/AssetFactory.aspx?did=11110>
- Government of Ontario, *The Greenbelt Plan (2005)*, <http://www.mah.gov.on.ca/Page189.aspx>, on course UW Learn site.
- Government of Ontario, *Growth Plan for the Greater Golden Horseshoe 2006, consolidation 2013* (Toronto: OMMAH, 2013), on course UW Learn site.
- 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>
- John Barber, "Will Ontario's future be green?" *Toronto Star*, 18 October 2014, final installment of a series of special report articles on the Greenbelt, on course UW Learn site; the whole set is available at http://www.greenbelt.ca/toronto_star_series.
- Robert B. Gibson, "Sustainability and the Greenbelt," *Plan Canada* 51:3 (2011), pp.38-41, on course UW Learn site.
- Environmental Defence, "Ontario's Greenbelt under threat," (December 2014); <http://environmentaldefence.ca/reports/ontario's-greenbelt-under-threat-study-what-s-risk>, on course UW Learn site.
- Cheryl McNamara, "In Pickering, another (bigger) airport battle is reprised," *Now* 4 February 2014, <https://nowtoronto.com/news/environment/in-pickering-another-bigger-airport-battle-is-reprised/>, on course UW Learn site.
- D Kirchoff, DDP McCarthy, D Crandall, L McDowell and GS Whitelaw, "Strategic environmental assessment and regional infrastructure planning: the case of York

Region, Ontario,” *Impact Assessment and Project Appraisal*, 29:1 (2011), pp.11-26; on course UW Learn site.

York Region, *York Region Sustainability Strategy: Towards a Sustainable Region* (Newmarket: Regional Municipality of York, 2007), www.york.ca/NR/rdonlyres/.../Final+Sustainability+document.pdf; also on course UW Learn site.

Discussion questions

Q3a: What [from the perspective of your interest] are the most important public interest considerations to be addressed and objectives to be met in the Ring of Fire region and how should regional planning and project level environmental assessments be designed and used to contribute to addressing these considerations and meeting these objectives?

Q3b: What [from the perspective of your interest] are the most important public interest considerations 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?

4. January 31 Sustainability assessment

- international and Canadian developments
- case examples: Voisey's Bay mine assessment, 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

Readings:

Robert B. Gibson, *Sustainability Assessment*, chapters 5-7, "Criteria," "Trade-offs," and "Processes" [or if you can't get the book: Robert B. Gibson, "Sustainability assessment: basic components of a practical approach," *Impact Assessment and Project Appraisal* 24:3 (2006), pp.170-182; on course UW Learn site].

Robert B. Gibson, "Why sustainability assessment?" chapter 1 in Alan Bond, Angus Morrison-Saunders and Richard Howitt, editors, *Sustainability Assessment: pluralism, practice and progress* (London: Taylor and Francis, 2012), pp.3-17; on course UW Learn site.

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.

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:

Thomas L. Green, "Lasting Benefits from Beneath the Earth: Mining nickel from Voisey's Bay in a manner compatible with the requirements of sustainable development," report for the Environmental Assessment Hearings into the Proposed Voisey's Bay Nickel Mine, prepared for the Innu Nation, 5 October 1998; on course UW Learn site.

Kemess North Copper-Gold Mine Project, Joint Review Panel Report, British Columbia, 17 September 2007; www.elc.uvic.ca/documents/Kemess-South-EA-Report-Sept2007.pdf; also on course UW Learn site.

Environmental Assessment of the Whites Point Quarry And Marine Terminal Project, Joint Review Panel Report, Nova Scotia, October 2007; www.gov.ns.ca/nse/ea/whitespointquarry.asp; on course UW Learn site.

Mark Winfield, Robert B. Gibson, Tanya Markvart, Kyrke Gaudreau and Jenny Taylor, "Implications of sustainability assessment for electricity system design: the case of the Ontario Power Authority's Integrated Power System Plan," *Energy Policy* 38 (2010), pp.4115-4126; on course UW Learn site.

Mining, Minerals and Sustainable Development Project, *Final Report: Breaking New Ground* (London: IISD, 2002); <http://www.iied.org/mmsd/finalreport/index.html>.

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.

Ontario Power Authority, *Ontario's Integrated Power System Plan, Discussion Paper 6: Sustainability* (10 November 2006); on course UW Learn site.

Voisey's Bay Mine and Mill Environmental Assessment Panel, Voisey's Bay Mine and Mill Environmental Assessment Panel Report (March 1999), <http://www.ceaa.gc.ca/default.asp?lang=En&n=0a571a1a-1&xml=0a571a1a-84cd-496b-969e-7cf9cbea16ae&toc=show>.

Discussion questions

Q4a: What [from the perspective of your interest] are the most important public interest advantages of sustainability-based assessments focused on delivering most positive contributions to sustainability (compared to the more usual assessments today, focused on mitigation of environmental negative effects)? Illustrate with examples from a past case or cases.

Q4b: What [from the perspective of your interest] are the most important public interest challenges, potential weaknesses and grounds for concern about using sustainability-based approaches to environmental assessment? Illustrate with examples from a past case or cases.

5. February 7 Sustainability assessment application: the Mackenzie Gas Project case

- the major innovations
- the limitations
- the responses

Readings:

Robert B. Gibson, *Sustainability Assessment*, chapters 5-7, "Criteria," "Trade-offs," and "Processes"

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, *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>; 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.

Discussion questions:

Q5a: If you were in charge of designing a planning and decision-making process for a future major non-renewable resources project in the Canadian north [and taking into account the perspective of your interest], what features of the Mackenzie panel's sustainability-based assessment would you most want to adopt for your case?

Q5b: If you were in charge of designing a planning and decision-making process for a future major non-renewable resources project in the Canadian north [and taking into account the perspective of your interest], in what ways would your approach differ from that used in the Mackenzie panel's sustainability-based assessment (i.e., what would add to, remove from or adjust in the planning and decision-making process)?

6. February 14 Complex ecological, social and socio-ecological systems

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

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.

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

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.

The Scottish Government, "Applying an ecosystems approach to land use," Information Note (March 2011), available at <http://www.scotland.gov.uk/Publications/2011/03/16083740/1>, also on course UW Learn site

Lora Flaherty, *Waterloo's West Side Story: planning for the Laurel Creek Watershed*, Ontario case report no. 4 (Waterloo: Environmental Assessment and Planning in Ontario Study, ERS/UWaterloo, 1995), 32pp., on course UW Learn site.

James Kay, Henry Regier, Michelle Boyle, and George Francis, "An Ecosystem Approach for Sustainability: Addressing the Challenge of Complexity," (the SOHO paper) *Futures* 31:7 (Sept 1999), pp.721-742, on course UW Learn site.

James Kay and Henry Regier, "Uncertainty, Complexity and Ecological Integrity: Insights from an Ecosystem Approach ", in P. Crabbé, A. Holland, L. Ryszkowski and L. Westra (eds), *Implementing Ecological Integrity: Restoring Regional and Global Environmental and Human Health* (Kluwer, NATO Science Series, Environmental Security, 2000) pp.121-156, on course UW Learn site.

Discussion questions:

Q6a: What would be the most important considerations in applying an understanding of complex systems and use of an ecosystem approach to making decisions about how best to design an assessment of a project to rehabilitate a gravel pit or restore a wetland complex in southern Ontario or southern British Columbia were human activities are important factors and are still growing? Take into account the influence of regional planning and other decision making beyond the immediate scale of the project.

Q6b: What would be the most important considerations in applying an understanding of complex systems and use of an ecosystem approach to collecting data, doing impact predictions and making decisions of a proposed hydropower project, or mine or hydrocarbon development in a relatively non-industrialized and non-roaded part of Canada (e.g., northern Ontario or BC, or one of the territories) and what would be the

most effective way of ensuring that these considerations are incorporated effectively and efficiently in the decision making? Take into account the influence of regional planning and other decision making beyond the immediate scale of the project.

7. February 28 Complexity, uncertainty and precaution

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

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>.

Possible additional readings:

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

Robert B. Gibson, "We just don't know: lessons about complexity and uncertainty in Canadian environmental politics," in Robert Paehlke and Douglas Torgerson, editors, *Managing Leviathan: Environmental Politics and the Administrative State*, second edition (Peterborough: Broadview Press, 2005), pp.145-170, on course UW Learn site.

Mary O'Brien, "The essential features of an alternatives assessment" in *Making Better Environmental Decisions* (Cambridge: MIT Press, 2000), pp.191-201.

Canadian Biotechnology Advisory Committee, *Improving the Regulation of Genetically Modified Foods and Other Novel Foods in Canada: report to the Government of Canada Biotechnology Ministerial Coordinating Committee* (Ottawa: CBAC, August 2002), on course UW Learn site.

Michael McDonald, *Biotechnology, Ethics and Government: A Synthesis* prepared for the Canadian Biotechnology Advisory Committee, Project Steering committee on Incorporating Social and Ethical Considerations into Biotechnology (October 2000), on course UW Learn site.

Susan Sherwin, *Towards an Adequate Ethical Framework for Setting Biotechnology Policy*, prepared for the Canadian Biotechnology Advisory Committee, Stewardship Standing Committee (Ottawa: CBAC, January 2001, on course UW Learn site.

Canada, *A Canadian Perspective on the Precautionary Approach/Principle: Discussion Document* (Ottawa: September 2001), also on course UW Learn site.

Stuart Lee and Katherine Barrett, "Comments on *A Canadian Perspective on the Precautionary Approach/Principle: Discussion Document*," (Science and Environmental Health Network, 28 March 2002), on course UW Learn site.

Discussion questions

Q7a: If you were an advisor to a major Canadian jurisdiction organizing a public discussion of a proposal for a major controversial activity, what would be your main points of advice [taking into account the perspective of your interest] on the ethical and practical considerations in designing the process for public deliberations? Pick one of the following areas of controversial activity: a new pipeline to carry Alberta bitumen to east coast or foreign markets, fracking, a substantial carbon tax, uranium exploration/mining, an urban light rail transit project, food biotechnology.

Q7b: If you were an advisor to a major Canadian jurisdiction that organizing a public discussion of a proposal for a major controversial activity, what would be your main points of advice [taking into account the perspective of your interest] on the ethical and practical considerations in designing the process for public deliberations? Pick one of the following areas of controversial activity, not including the one chosen for Q8a: a new pipeline to carry Alberta bitumen to east coast or foreign markets, fracking, a substantial carbon tax, uranium exploration/mining, an urban light rail transit project, food biotechnology.

8. March 7 Cumulative effects assessment

- principles and challenges
- guidance from the Canadian Environmental Assessment Agency
- case examples: Fort Liard, oil sands and Fort McMurray, Mackenzie Gas Project and induced development

Readings:

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, 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), 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.

Monique Dubé, Peter Duinker, Lorne Greig, Martin Carver, Mark Servos, Mark McMaster, Bram Noble, Hans Schreier, Lee Jackson, and Kelly R Munkittrick, A framework for assessing cumulative effects in watersheds: an introduction to Canadian case studies, *Integrated Environmental Assessment and Management* 9:3 (2013), pp.363–369; on course UW Learn site.

Possible additional readings:

Petr Cizek, et al., *Fort Liard Area Cumulative Impact Mapping Project: Technical Report* (Yellowknife: CARC, 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.

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

Discussion questions:

Q8a What [from the perspective of your interest] are the most important strengths and limitations of the approach that the Mackenzie Gas Project Panel took to addressing cumulative effects?

Q8b What [from the perspective of your interest] are the major advantages and disadvantages of considering cumulative effects in project level assessments and what [from the perspective of your interest] are the major advantages and disadvantages of considering cumulative effects in strategic level assessments?

9. March 14 Strategic and regional assessment

- principles and international and Canadian practice
- case examples: salmon aquaculture in British Columbia, DFAIT assessment of trade agreements, growth management planning
- introduction to linking strategic and project level assessments

Readings:

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* (2004); 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.

Government of British Columbia, Environmental Assessment Office, "Backgrounder: How the Salmon Aquaculture Review was conducted," (September 1997), on course UW Learn site.

Ontario Ministry of the Environment, "Backgrounder: Declaration Order for Forest Management" (July 2003), on UW Learn site.

Possible additional readings:

Bram Noble, "Strategic Environmental Assessment," in Kevin S. Hanna, editor, *Environmental Impact Assessment: Participation and Practice* (Toronto: Oxford University Press, 2005), chapter 6.

Ontario Ministry of Natural Resources, "Forest Management Class Environmental Assessment," available at <http://ontariosforests.mnr.gov.on.ca/timbereaoverview.cfm>.

Ontario Minister of the Environment, "Forest Management Declaration Order," (July 2003), available at <http://ontariosforests.mnr.gov.on.ca/timbereaoverview.cfm>.

Robert B. Gibson, "Ontario's class assessments: lessons for application to policies, plans and programs," in Steven A. Kennett, ed., *Law and Process in Environmental Management* (Calgary: Canadian Institute of Resources Law, 1994), pp.84-100.

Tim Smith, "Reviews of the Canadian SEA System: Commissioner for Environment and Sustainable Development reports, 1998 and 2004," (CEAA, unpublished, March 2008); on course UW Learn site.

British Columbia, Environmental Assessment Office, *Salmon Aquaculture Review Final Report, Summary*, on course UW Learn site; full report including the summary available at http://www.eao.gov.bc.ca/epic/output/html/deploy/epic_document_20_6045.html.

British Columbia, Fisheries and Aquaculture, "Salmon Aquaculture Policy Framework (12 September 2002), available at http://www.agf.gov.bc.ca/fisheries/salmon_aqua_policy.htm.

Carla Davidson, *The Salmon Aquaculture Review: facing ecological complexity and scientific uncertainty in the first policy level assessment under British Columbia's Environmental Assessment Act*, British Columbia case report no. 2 (Waterloo: Integrating the Environment into Planning for Growth Study, ERS/UWaterloo, August 1999), 23pp.; available at <http://www.fes.uwaterloo.ca/research/asmtplan/bcmain.html>

Kirk Stinchcombe and Robert B. Gibson, "Strategic environmental assessment as a means of pursuing sustainability: ten advantages and ten challenges," *Journal of Environmental Assessment Policy and Management* 3:3 (2001), pp.343-372; on course UW Learn site.

Robert B. Gibson, "Trading short-sightedly: DFAIT on the environment," [the Department of Foreign Affairs and International Trade is proposing to avoid considering sustainability in its environmental assessments of anticipated trade agreements] *Policy Options* (January-February 2001), pp.83-87 [on UW Learn site].

Hugh Benevides, Denis Kirchhoff, Robert Gibson and Meinhard Doelle, *Law and Policy Options for Strategic Environmental Assessment in Canada*, report commissioned by the Canadian Environmental Assessment Agency, December 2008.

Discussion questions:

Q9a: What [from the perspective of your interest] would be the main challenges of organizing cooperative inter- or multi-jurisdictional assessments of strategic undertakings in Canada (e.g. federal-provincial or inter-provincial/territorial) and how might they be overcome? Illustrate with a hypothetical but plausible case example (e.g. future bitumen development in Alberta, marine parks on the east coast, or any of the issues from week 8).

Q9b: What [from the perspective of your interest] would be the main advantages and challenges of introducing a legal obligation for environmental assessment of strategic undertakings in Canada at the federal, provincial and territorial levels?

10. March 21 Tiered strategic and project assessment

- general case example 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: Greater Golden Horseshoe planning, Ontario's Greenbelt and the Oak Ridges Moraine, Waterloo Region, Greater Vancouver Regional District and Capital Regional District in BC

Readings:

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.

Government of Ontario, *Oak Ridges Moraine Conservation Plan* (2002),

<http://www.mah.gov.on.ca/Page1707.aspx>; also on course UW Learn site

Region of Waterloo, *Planning our Future: Regional Growth Management Strategy* (June 2003),

<http://www.regionofwaterloo.ca/en/abouttheenvironment/growthmanagement.asp>; also on course UW Learn site.

Region of Waterloo, "Transit Project Assessment Process Public Consultation January 2012,"

http://rapidtransit.regionofwaterloo.ca/en/multimedialibrary/resources/2012_rt_tpa_pc_chandout.pdf; also on course UW Learn site.

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

Possible additional readings:

Ontario Ministry of Municipal Affairs and Housing, *Greenbelt Plan* (February 2005)

<http://www.mah.gov.on.ca/Page189.aspx#greenbelt>; on course UW Learn site.

Ontario Ministry of Public Infrastructure Renewal, *Places to Grow: Growth Plan for the Greater Golden Horseshoe* (2006), on course UW Learn site; documented at

https://www.placestogrow.ca/index.php?option=com_content&task=view&id=9&Itemid=14

Discussion questions:

Q10a: How might linked strategic/regional and project assessments deliver both more effectiveness and more efficiency in environmental assessments?

Q10b: What interests would be most likely to benefit from and support the idea and which interests would be most likely to foresee problems and resist such initiatives?

Q10c: What applications might be most promising?

11. March 28 Cooperation and collaboration: multi-jurisdictional assessments, scenarios and alternatives, 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

Readings:

Robert B. Gibson, *Sustainability Assessment*, chapter 8, "Decisions"

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.

Stephen Whitfield, Helmut Geist, Antonio A.R. Ioris, "Deliberative assessment in complex socioecological systems: recommendations for environmental assessment in drylands," *Environmental Monitoring and Assessment* 183:1 (2011), pp.465-483, 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.

Peter N. Duinker and Lorne A Greig, "Scenario analysis in environmental impact assessment: improving exploration for the future," *Environmental Impact Assessment Review* 27 (2007), pp.206-219, on course UW Learn site.

David Lawrence, *Significance criteria and determination in sustainability-based environmental impact assessment*, a report commissioned and published by the Joint Review Panel for the Mackenzie Gas Project, 30 November 2005, on course UW Learn site.

Possible additional readings:

Jennifer M.P. Stewart and A. John Sinclair, "Meaningful public participation in environmental assessment: perspectives from Canadian participants, proponents and government," *Journal of Environmental Assessment Policy and Management* 9:2 (June 2007), pp.161-183, on course UW Learn site.

Canadian Environmental Assessment Agency, "Considering Aboriginal traditional knowledge in environmental assessments conducted under the Canadian Environmental Assessment Act -- Interim Principles," on course UW Learn site.

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, also available at <http://www.city.toronto.on.ca/moraine/reports.htm>.

Frank Fischer, "Citizens and experts in risk assessment: technical knowledge in practical deliberation," *Technikfolgenabschätzung* 2:13 (2004), pp.90-98.

Roger L. Caldwell, "Futures techniques," see <http://ag.arizona.edu/futures/tou/sem2-techniques.html>, also on course UW Learn site.

- Gilberto C. Gallopin, Silvio Funtowicz, Martin O'Connor, and Jerry Ravetz, "Science for the twenty-first century: from social contract to the scientific core," *International Journals of Social Science* 168 (2001), pp.219-229, on course UW Learn site
- Jan Rotmans, *et al.*, "Visions for a Sustainable Europe," [re scenarios] International Centre of Integrative Studies, Maastricht, The Netherlands April 2000, on course UW Learn site.
- Sandra Greeuw, *et al.*, "Cloudy crystal balls: An assessment of recent European and global scenario studies and models," (European Environmental Agency, November 2000), on course UW Learn site.
- C.S. Holling, "Understanding the complexity of economic, ecological and social systems," *Ecosystems* 4 (2001), pp.390-405, on course UW Learn site.
- Rolf Lidskog, "Scientised citizens and democratised science: re-assessing the expert-lay divide," *Journal of Risk Research* 11:1 (2008), pp. 69-86, on course UW Learn site.
- Laura K. Schmitt Olabisi, *et al.*, "Using scenario visioning and participatory system dynamics modeling to investigate the future: lessons from Minnesota 2050," *Sustainability* 2:8 (2010), pp.2686-2706, on course UW Learn site.
- John Sinclair, Alan Diduck, 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.
- R.J. Swart, P. Raskin and J. Robinson, "The problem of the future: sustainability science and scenario analysis," *Global Environmental Change* 14:2 (July 2004), pp.137-146, on course UW Learn site.
- David Waltner-Toews, James Kay, Tamsyn P. Murray and Cynthia Neudoerffer, "Adaptive methodology for ecosystem sustainability and health (AMESH): an introduction," draft manuscript, on course UW Learn site.

Discussion questions:

Q11a: From the perspective of the interests you are representing, could a sustainability-oriented future scenarios exercise be helpful determining

- *how the Canadian government and Indigenous authorities could go about developing an overall program for improving long term wellbeing in remote Indigenous communities in Canada; or*
- *how the Canadian federal government in collaboration with other Canadian jurisdictions might best identify pathways to meeting our Paris Agreement commitments to mitigating climate change and determining implications for particular projects (e.g., to identify and compare policy and project alternatives and clarify assessment criteria)?*

Consider how the process might be organized; who should be involved; what major difficulties could arise and how would you address them.

Q11b: From the perspective of the interests you are representing, what would be the main challenges of organizing a cooperative inter- or multi-jurisdictional assessment of a strategic undertaking that would guide anticipated individual project assessments involving the federal government and a province and an Indigenous authority and how might they be overcome? Illustrate with a hypothetical but plausible case example (e.g., a plan for marine parks on the BC coast, or any of the issues from previous discussions).

12. April 4 Onwards from here: course summary, opportunities for application and implications for professional practice

- the wide world of professional practice in assessment, broadly defined to go well beyond formally legislated assessment processes
- what it's like working in environmental and sustainability assessment and related areas
- various pathways to getting employed and pursuing a career
- where the biggest challenges and most attractive opportunities lie

Recommended reading:

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

Discussion questions:

Q12a: What would be the most important and interesting environmental assessment improvement initiative(s) to be hired to work on for a future federal, provincial, territorial or aboriginal authority in Canada?

Q12b: Beyond environmental 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?

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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/>. ENV students are strongly encouraged to review the material provided specifically for students by the university's Academic Integrity office. See <https://uwaterloo.ca/academic-integrity/integrity-waterloo-students>.

Every student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his or her actions. 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 offences and types of penalties, students should refer to Policy 71 - Student Discipline, <https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71>.

Grievances: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable has the right to grieve. See Policy 70 – Student Petitions and Grievances, <https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-70>. When in doubt please contact your Undergraduate Advisor for details.

Appeals: A decision made or penalty imposed under Policy 70 – Student Petitions and Grievances (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.

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Mental Health: The University of Waterloo, the Faculty of Environment and our Departments consider students' well-being to be extremely important. We recognize that throughout the term students may face health challenges – physical and/or emotional. Mental health is a serious issue for everyone and can affect your ability to do your best work. *Help is available.* Counselling Services (<http://www.uwaterloo.ca/counselling-services>) is an inclusive, non-judgmental, and confidential space for anyone to seek support. They offer confidential counselling for a variety of areas including anxiety, stress management, depression, grief, substance use, sexuality, relationship issues, and much more.

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.

Unclaimed assignments: Assignments that are not picked up by students will be retained for four months after the course grades become official in Quest. After that time, they will be destroyed in compliance with UW's procedures for confidential shredding: <https://uwaterloo.ca/central-stores/confidential-shredding>.