ERS 415 Environmental Assessment III
Advanced Environmental and Sustainability Assessment
Winter 2015

Time and location: Tuesdays 11:30-2:20, 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 prerequisite 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, 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 undertaking; 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
There is one course text, available in the bookstore:
   Robert B. Gibson (with Selma Hassan, Susan Holtz, James Tansey and Graham Whitelaw), *Sustainability Assessment: criteria and processes* (London: Earthscan, 2005)

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/](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;
• class preparation notes for each week except the first week and the last week (to be graded in two sets – notes for weeks 2-6 and 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:
• 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 four-member (or occasionally five-member) student panels, one panel 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, the four 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 “415w15 participant assignments” on the course UW Learn site. The teams have eight or nine members and 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 subcategories 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 “415w15 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).

Students in each panel should meet with the instructor or teaching assistant during the class break at the session one week prior to the presentation week 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 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 (rgbibson@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 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. Be sure to 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 concise information presented in a format designed for allowing a quick grasp of the material, but also including 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 key points. In addition to the considerations noted above, grading of the essays 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).

*Paper 1: a briefing note*
For the first paper, covering weeks 1-5, you will be preparing a briefing document for the Canadian Council of Ministers of the Environment (CCME), which (we will assume for the purposes of the assignment) is about to undertake a comprehensive and ambitious review of how best to improve the effectiveness and efficiency of environmental assessment in Canada, to make assessment a stronger tool for contributing to
sustainability and to encourage its adoption and application more broadly (beyond conventional assessment processes).

The question:
What are the most important design features of a strengthened and compatible set of assessment regimes (including laws, policies, practice guides, etc. for each of the provinces and territories as well as the federal level) that would ensure effective and efficient sustainability-based assessment in Canada?
While the focus should be on how to ensure that the sustainability-based agenda is incorporated, the briefing paper should also address
• how to ensure the new regimes would introduce more consistency in environmental assessment requirements across Canada while respecting the particular needs for and challenges of environmental assessment in the different provinces and territories; and
• how to deliver more effective assessment and greater process efficiency at the same time.
Consider what sorts of undertakings ought to be covered, what general assessment requirements ought to be imposed, and how various stakeholders, including members of the public, should be involved. Where appropriate, provide illustrative examples of implications for particular kinds of undertakings that should be subject to the new assessment regime. Include attention to overlaps among federal, provincial, territorial and Aboriginal assessment requirements, implications for relations with other decision making processes (e.g. urban and regional planning and sectoral initiatives to deal with waste, transportation, species at risk, fisheries, parks and protected areas, etc.). You should include some general attention to the broad issues that will be covered in future weeks of this course, but details are not expected (they will be addressed in the second paper).

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 senior official, which is a briefing note, 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 13.

Paper 2: details on major issues for briefing note appendices
The second paper, covering the whole course, but focusing on the material for weeks 6-11 will be a more detailed appendix for the briefing document you submitted for the first paper assignment. The intended core reader is still the CCME.
The questions:
1. What are the key details to be incorporated in the new sustainability-based law and policy regimes that you have proposed in the initial briefing document that would incorporate responses to the challenges addressed in the lectures, readings and discussions for weeks 6-11?
2. How would these characteristics of the new regime apply to an illustrative pair of related undertakings – one at the strategic level and one at the project level or equivalent? Take into consideration overlapping federal, provincial/territorial and Aboriginal authority and the perspectives of other interests. Also, where appropriate, consider use of processes beyond environmental assessment law (e.g. laws related to urban planning or resource management for forestry, fisheries, parks, etc.). At least half the paper should be devoted to discussion of application to the illustrative case. You will need to provide basic information on the strategic level undertaking’s basic purpose, the nature of alternatives to be considered, and the main issues raised; the more specific level undertaking’s purposes, alternatives and key issues; and 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.

You will need to pick a pair of related strategic and project level undertakings to discuss in the paper. 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 project 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. Examples are provided below. 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 developments in northern Ontario, or the infrastructure and regional growth management planning initiatives in the Greater Golden Horseshoe/Greenbelt area in southern Ontario. Some other illustrative examples of possible pairs of strategic/project undertakings are listed in the document “415w15 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.

Requirements:
This second paper is to be structured as an appendix to your initial briefing note, recognizing that the same basic briefing note principles apply. 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 Monday, April 6.

**Important UW policies and services on key course-related topics**

*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/](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. 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 [http://www.lib.uwaterloo.ca/ait/](http://www.lib.uwaterloo.ca/ait/).

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: [https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71](https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-71). For typical penalties, check Guidelines for Assessment of Penalties, [https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/guidelines/guidelines-assessment-penalties](https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/guidelines/guidelines-assessment-penalties).

Within ENV, those committing academic offences (e.g. cheating, plagiarism) will be placed on disciplinary probation and will be subject to penalties, which may include a grade of 0 on affected course elements, 0 on the course, suspension, and expulsion. ENV students are strongly encouraged to review the material provided by UW’s Academic Integrity office; see: [http://uwaterloo.ca/academicintegrity/Students/index.html](http://uwaterloo.ca/academicintegrity/Students/index.html).

**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. Read Policy 70 – Student Petitions and Grievances, Section 4, [www.adm.uwaterloo.ca/infosec/Policies/policy70.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm). 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](http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm).

**Disabilities:** The AccessAbility Office, located in Needles Hall, Room 1132, 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 the AccessAbility Office at the beginning of each academic term.

**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
Help is available. Counselling Services [http://www.uwaterloo.ca/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](https://uwaterloo.ca/central-stores/confidential-shredding).

**Schedule of course sessions, issues and readings**

1. **January 6**  **Introduction to course**
   - core elements of advanced environmental assessment and associated efficiency issues
   - course structure and assignments:

2. **January 13**  **The state of the art: a history of uneven progress, innovation, retreat, and continuing competing challenges**
   - 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 future: 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, “Notes on the basic components of weak and strong environmental assessment processes,” (January 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.


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.


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:


Discussion questions
Q2a: What have been the main accomplishments of environmental assessment advance, especially in Canada so far, and what potential future advances offer the greatest promises for your interest?

Q2b: What have been the greatest weaknesses and continuing deficiencies of environmental assessment in Canada so far; how may these affect your interest and what would you want done about them?
3. January 20 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 – Ring of Fire:


**Readings – Greater Golden Horseshoe and the Greenbelt:**


**Discussion questions**

Q3a: What, from the perspective of your interest, are the main environment and sustainability related challenges facing the Fire of Fire region and its communities in light of the proposed and anticipated mining and related developments there, and how might they be addressed usefully by a combination of strategic and project level environmental assessment and related processes (such as regional land use planning that is a form of strategic environmental assessment)?

Q3b: What, from the perspective of your interest, are the main environment and sustainability related challenges facing the Greater Golden Horseshoe and Greenbelt area that might be addressed usefully by a combination of perhaps several strategic
and project level environmental assessment and related planning processes (applying both environmental assessment and regional planning legislation)?

4. January 29  Sustainability assessment
international and Canadian developments

  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

Readings:

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.
MMSD, North American Regional Report, *Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities*; http://www.iied.org/mmsd/rep/n_am.html; also on course UW Learn site.
Discussion questions
Q4a: What would be the main 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 practical examples (historical or potential).
Q4b: What are likely to be the main challenges, potential weaknesses and grounds for concern? Illustrate with practical examples (historical or potential).

5. February 3 The Mackenzie case
the major innovations
the limitations
the responses

Readings:

Recommended background documents (skim):

Discussion questions:
Q5a: What were the main strengths and limitations of the Mackenzie case as an example of how to do environmental assessment?
Q5b: How could the Mackenzie approach be adjusted or supplemented by other initiatives that would make it more attractive and feasible for regular application, especially for different kinds of undertakings including smaller ones?
6. February 10  Complex ecological, social and socio-ecological systems and the ecosystem approach
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:

Possible additional readings:
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
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 assessment of a project to rehabilitate a degraded urban stream (not unlike Laurel Creek) somewhere in the Greater Golden Horseshoe area, and what would be the most effective way of ensuring that these considerations are incorporated effectively and efficiently in the planning?

Q6b: 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 assess a multiple metals mine (e.g. Noront’s Eagle’s Nest mine) in the Ring of Fire area, and what would be the most effective way of ensuring that these considerations are incorporated effectively and efficiently in the planning?

7. February 24 Tools for assessing complex socio-ecological systems: scenarios, public involvement, traditional knowledge and judgments about significance

socio-ecological systems and public choices
scenario building
citizens and experts: technical knowledge and public consultation, citizen experts,
traditional knowledge
equity effects, including gender equity
means of determining significance in advanced assessment practice
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 Ellis, "Meaningful consideration? a review of traditional knowledge in environmental decision making," Arctic 58:1 (March 2005), 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

Frank Fischer, “Citizens and experts in risk assessment: technical knowledge in practical

"Futures techniques," [http://ag.arizona.edu/futures/tou/sem2-techniques.html]

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] Internalional
Centre of Integrative Studies, Maastricht, The Netherlands April 2000, on course UW
Learn site.

Sandra Greeruw, *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

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

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:
Q7a: Could a sustainability-oriented future scenarios exercise be helpful in the Ring of
Fire area to clarify assessment criteria, identify policy and project alternatives and guide
judgments about the significance of effects? How might it be organized? How far should
it look ahead? What major difficulties would you foresee and how would you address them?

Q7b: How might a sustainability-oriented future scenarios exercise be designed and used in a major southern Ontario urban region (e.g. Waterloo Region, or York Region) or for the Greater Golden Horseshoe and Greenbelt area as a whole? What major issues and options should it address? What kinds of future plans and projects might it guide? Who should be involved? How far should it look ahead? What major difficulties would you foresee and how would you address them?

8. March 3 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:

Possible additional readings:
Environmental Law Centre, University of Victoria, “The precautionary principle in Canada,” (June 2010), on course UW Learn site.
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.
Discussion questions

Q8a: What are the most important ethical and practical considerations in deciding how to organize a public discussion of a proposal for a major controversial activity (e.g. pick one of the following: fracking, more bitumen extraction, uranium exploration/mining, new low density suburbs, food biotechnology)?

Q8b: What are the most important ethical and practical considerations in deciding how to organize a public discussion of a proposal for a major controversial activity (e.g. pick another of the following: fracking, more bitumen extraction, uranium exploration/mining, new low density suburbs, food biotechnology)?

9. March 10  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, Puslinch gravel

Readings:
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.

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.


*Discussion questions:*

Q9a What were the key cumulative effects issues surrounding the Mackenzie Gas Project case and how well did the assessment address them?

Q9b What are the major advantages and disadvantages of considering cumulative effects in project level assessments?

10. March 17  

**Strategic environmental 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 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:*


Discussion questions:
Q10a: What 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?
Q10b: What would be the main challenges of organizing cooperative inter- or multi-jurisdictional assessment of strategic undertakings in Canada (e.g. federal-provincial or inter-provincial) and how might they be overcome?

11. March 24 Links between 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

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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.

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_pchandout.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.


Discussion questions:
Q11a: How might linked strategic and project assessments deliver both more effectiveness and more efficiency in environmental assessments?
Q11b: 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?
Q11c: What applications might be most promising?

12. March 31  Course summary: Opportunities for application and implications for professional practice
what it’s like working in environmental assessment and related areas
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?