

GEOG/ENST 3022 Integrated Environmental and Natural Resources  
September 4 – December 4, 2024

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Office Hours: Thursdays, 8:05 – 9:15am or by appointment

Timetable: Wednesdays, 8:35 – 11:25am

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### Course Description

We depend upon the natural world for the many resources that help maintain the standard of living we enjoy today. However, our seemingly insatiable appetite for these resources is driving us towards an environmental crisis.

Once the domain of economics, today's resource and environmental management strategies are interdisciplinary. Over the past half century, resource and environmental management has evolved from concepts of multiple use and integrated watershed management to integrated resource management, regional land-use planning, ecosystem-based management, and finally to integrated resource and environmental management. A theme that resonates through these various approaches is an environmental sensibility. However, have environmental concerns truly gained equal standing in decisions concerning resource extraction and use alongside economic and political concerns?

This course is designed to combine the theoretical with the pragmatic, seeking to integrate ideas about integrated resource and environmental management with the practical approaches and methodologies used professionally today. The course combines lectures introducing various ideas and approaches used in resource and environmental assessment with workshops in which you will apply the ideas and practices presented in lectures to a case study.

This course is a pre-requisite for *GEOG/ENST 4004 Environmental Impact Assessment* and is strongly recommended for both *GEOG/ENST 4022 Design Thinking for the Anthropocene* and *GEOG/ENST 4006 Environmental Policy* as well.

### Course Textbook

There is no textbook for this course. However, you have access online to the *Handbook on Strategic Environmental Assessment* (2021) through the library web site. This is a new publication that is quite comprehensive.

## Course Plan

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### *Introduction*

*September 4. Course Introduction.* From Simple to Wicked Problems. The Nature of Problems. Introducing the Policy Topics.

### *Workshop Session Topics:*

Introduction to your Policy Topics; Brainstorming Topic Overviews; Scoping your Subject.

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### *Part 1: Understanding in a Turbulent World*

*September 11. Engaging this Turbulent World in which We Live.* Situating IREM in a Complex, Turbulent World. Dealing with Turbulence. Social-Ecological Systems (SESS).

Mapping topic connections using a social-ecological model; describing turbulence surrounding your topic.

*September 18. The Philosophical Framing of IREM Questions and Actions.* The Personal Perspective and the Social Framing: Worldviews and Paradigms. Situating IREM Actions in the 'Bigger Social Picture'.

Situating your policy topic in the broader societal issues (identifying those that will impact your assessment)

*September 25.: From Frameworks to Modelling IREM.* From Theory to Practice.

Determining the best framework and models for conducting your topic assessment.

*October 2.* Unit review for Mid-term exam + Policy Presentations

Presentation of assignment one drafts

*October 9.* Mid-term (full class)

No workshop session

### *Part 2: Planning in a Turbulent World*

*October 16. Introducing Part Two.* The Centrality of Engagement to IREM: The Why; The Three Spheres of Actors.

Identifying the principal actors/stakeholders you believe need to be included in engagements.

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## Academic Break – No classes October 21 – 25

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### *Part 2: Planning in a Turbulent World (cont.)*

*October 30. Engaging Communities and Individuals.* The Who, How, When and Where of Participation.

Identifying citizens and citizen groups you believe need to be included in engagements.

*November 6. Incorporating Social and Environmental Justice and Rights into IREM Actions.*

Incorporating social and environmental justice into your assessment.

*November 13: The challenge of knowledge in IREM.*

Identifying the range of knowledge and the sources of this knowledge required for your assessment.

*November 20. A Closing Discussion on IREM Philosophy and Practices.*

Structuring an assessment.

*November 27.* Unit review for Final exam + Policy Presentations

Presentations of assignment two drafts

*December 4.* TBD; today OR in Exam Period

No workshop session

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## Learning Outcomes

Upon completion of this course, you will possess

1. The *ability to organise a critical assessment* of social and environmental issues and their impacts within the current planning environment associated with IREM,
2. The *essential basic knowledge* of both established and evolving sustainability-based approaches to IREM with which to conduct such critical assessments,
3. The *confidence to explore and propose meaningful solutions* to societal problems as based on the established principles, methods, and approaches in IREM as learned in the course,
4. The *stronger collaborative skills* needed to work with peers actively, equitably, and consistently, and respectfully in today's professional world, and
5. The *ability to design an actual, professional assessment plan* to evaluate issues relating to IREM within society's existing and evolving institutional frameworks.

## Class Organisation

The course is organised into two parts examining the normative dimension and the strategic/operational dimensions of integrated resource and environmental management. Students will be required to have listened to the posted videos prior to each class. The scripts for each video will also be uploaded allowing students to follow along. However, these scripts are not transcripts; they are my working scripts. I do say more in the videos than presented in the scripts so listen to the videos on the course materials. you are required to have listened to these before class. This will allow for more focused discussions on key ideas plus the presentation of interesting case studies.

## The Policy Proposal and Unit Worksheets

You will be required to choose one of three hypothetical subjects. These are described in Appendix 1. The class will be evenly divided into these topics, so it is “first-come, first-served” in determining which you are ultimately assigned to. Therefore, if you are particularly interested in one over the others, sign up by e-mailing me early on! You will be applying what you learn in the unit lectures and videos to the specific policy topic you have been assigned to. The objective here is to connect the theoretical and pragmatic sides of IREM to real world issues.

The final hour of each class will be devoted to working on the policy assignments, focusing on the topic presented in the formal class. This is an opportunity for you to discuss the worksheet with other students working on the same topic, to share ideas, and basically help each other. In the real world, you will be expected to work in teams, and this is a valuable lesson in doing just that. Use these sessions to your advantage – but you must attend in order to benefit from these work sessions.

## Term Exams

There are also two exams, a mid-term exam covering the materials presented in the introduction and part one and a final exam covering the materials presented in the second part of the course. Each is worth 20% of your final grade. These tests will be on-line. You will be expected to demonstrate your understanding of the course materials by describing, explaining, and discussing the ideals, methods, and models presented in the formal lectures in an integrated essay of a set length – and NOT the workshops.

### Engagement with the Course Materials

Being prepared for each class is essential for this course. Again, you are required to have listened to the videos for that week's class before class so you can benefit the most from the in-class summary of ideas and from the weekly workshop. Participation is also important. Be ready to go every week and you will flourish in this class.

### Deliverables: Dates and Grading

Course grading is based upon two sets of deliverables: the two worksheets and the two exams. All deliverables are mandatory. Failure to complete any of the tasks (assignments and/or tests) could result in the student failing the course. Dates and assignment of grades are summarized in the table below:

<i>Worksheets</i>	<i>50%</i>
Worksheet One (due: October 16 by start of class 8:35am)	25%
Worksheet Two (due: December 8 last class of semester 8:35am)	25%
<i>Course Exams</i>	<i>40%</i>
Mid-term Exam: (October 9)	20%
Final Exam: (TBD)	20%
<i>Engagement with the Course Materials</i>	<i>10%</i>
<i>Total</i>	<i>100%</i>

### Final Grades

In accordance with the Carleton University Calendar, the letter grades assigned in this course will have the following percentage equivalents:

A+	90-100	B+	77-79	C+	67-69	D+	56-59	F	Below 50
A	85-89	B	73-76	C	63-66	D	53-56	WDN	Withdrawn
A-	80-84	B-	70-72	C-	60-62	D-	50-52	DEF	Deferred

ABS = Student absent from final exam.

FND (Failed, no Deferral) = Student could not pass the course even with 100% on final exam.

Final grades are subject to the Dean's approval.

### Late Submissions of Assignments

You are expected to meet your deadlines and I am going to impose severe penalties to encourage you to do so. Worksheet packages submitted:

1. Late (even one second past the due date and time) will incur an immediate two grade penalty in the grade. The submission time as recorded by the course BrightSpace will be accepted time of submission.
2. An additional one grade will be deducted for each day your assignment is late beginning with the second late day.
3. Assignments will not be accepted 10 days following the due day. You will receive a zero for that assignment.

I want you to take deadlines seriously. In this course, the assignments build on each other so it is imperative that you keep a steady pace through the semester.

### *Deferred Assignments/Grades*

Only official deferrals petitioned through the Office of the Registrar will be honoured. Students who are unable to complete a final paper or write a final examination because of illness or other circumstances beyond their control or whose performance on an examination has been impaired by such circumstances may apply within five working days to the Registrarial Services Office for permission to extend a term paper deadline or to write a deferred examination. Permission can be granted only if the request is fully and specifically supported by a medical certificate or other relevant documents.

### *Written Assignments*

If you feel you need assistance in improving your writing skills, you are encouraged to get in touch early in the term with the Writing Tutorial Service (Room 229, Patterson Hall, <http://www.carleton.ca/wts/>).

### *Retain Copies of Work Submitted*

Students are strongly advised to retain a hard copy (and electronic backup) of all assignments and term papers in the event of loss for whatever reason.

### *Plagiarism*

The University Academic Integrity Policy defines plagiarism as “*presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one’s own.*” This includes reproducing or paraphrasing portions of someone else’s published or unpublished material, regardless of the source, and presenting these as one’s own without proper citation or reference to the original source. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, artworks, laboratory reports, research results, calculations and the results of calculations, diagrams, constructions, computer reports, computer code/software, material on the internet and/or conversations. This also includes any AI-generated work.

Examples of plagiarism include, but are not limited to:

- any submission prepared in whole or in part, by someone else,
- using ideas or direct, verbatim quotations, paraphrased material, algorithms, formulae, scientific or mathematical concepts, or ideas without appropriate acknowledgment in any academic assignment,
- using another’s data or research findings without appropriate acknowledgement,
- submitting a computer program developed in whole or in part by someone else, with or without modifications, as one’s own,
- failing to acknowledge sources through the use of proper citations when using another’s work and/or failing to use quotations marks, and
- submitting any work generated by an AI chatbot program (e.g., ChatGPT), unedited or modified/edited by the student.

Plagiarism is a serious offence that cannot be resolved directly by the course's instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course.

In addition, students cannot submit work produced in any other course. The work submitted must be original and based on the materials presented in this course.

### Statement on Student Mental Health

As a university student you may experience a range of mental health challenges that significantly impact your academic success and overall well-being. If you need help, please speak to someone. There are numerous resources available both on- and off-campus to support you. Here is a list that may be helpful:

*Emergency Resources (on and off campus):* <https://carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

#### *Carleton Resources:*

- Mental Health and Wellbeing: <https://carleton.ca/wellness/>
- Health & Counselling Services: <https://carleton.ca/health/>
- Paul Menton Centre: <https://carleton.ca/pmc/>
- Academic Advising Centre (AAC): <https://carleton.ca/academicadvising/>
- Centre for Student Academic Support (CSAS): <https://carleton.ca/csas/>
- Equity & Inclusivity Communities: <https://carleton.ca/equity/>

#### *Off Campus Resources:*

- Distress Centre of Ottawa and Region: (613) 238-3311 or TEXT: 343-306-5550, <https://www.dcottawa.on.ca/>
- Mental Health Crisis Service: (613) 722-6914, 1-866-996-0991, <http://www.crisisline.ca/>
- Empower Me: 1-844-741-6389, <https://students.carleton.ca/services/empower-me-counselling-services/>
- Good2Talk: 1-866-925-5454, <https://good2talk.ca/>
- The Walk-In Counselling Clinic: <https://walkincounselling.com>

### Statement on On-going Pandemic Measures

It is important to remember that COVID is still present in Ottawa. The situation can change at any time and the risks of new variants and outbreaks are very real. There are a number of actions you can take to lower your risk and the risk you pose to those around you including being vaccinated, wearing a mask, staying home when you're sick, washing your hands and maintaining proper respiratory and cough etiquette.

*Feeling sick?* Remaining vigilant and not attending work or school when sick or with symptoms is critically important. If you feel ill or exhibit COVID-19 symptoms do not come to class or campus. If you feel ill or exhibit symptoms while on campus or in class, please leave campus immediately. In all situations, you should follow Carleton's symptom reporting protocols.

*Masks.* Masks are no longer mandatory in university buildings and facilities currently. However, we continue to recommend masking when indoors, particularly if physical distancing cannot be maintained. We are aware that personal preferences regarding optional mask use will vary greatly, and we ask that we all show consideration and care for each other during this transition.

*Vaccines.* While proof of vaccination is no longer required to access campus or participate in in-person Carleton activities, it may become necessary for the University to bring back proof of vaccination requirements on short notice if the situation and public health advice changes. Students are strongly encouraged to get a full course of vaccination, including booster doses as soon as they are eligible and submit their booster dose information in cuScreen as soon as possible. Please note that Carleton cannot guarantee that it will be able to offer virtual or hybrid learning options for those who are unable to attend the campus.

All members of the Carleton community are required to follow requirements and guidelines regarding health and safety which may change from time to time. For the most recent information about Carleton's COVID-19 response and health and safety requirements please see the [University's COVID-19 website](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact [covidinfo@carleton.ca](mailto:covidinfo@carleton.ca).

#### [Requests for Academic Accommodations](#)

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

*Pregnancy obligation.* Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For accommodation regarding a formally scheduled final exam, you must complete the Pregnancy Accommodation Form ([click here](#)).

*Religious obligation.* Write to me with any requests for academic accommodation as soon as possible after the need for accommodation is known to exist. For more details [click here](#).

*Academic Accommodations for Students with Disabilities.* The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a

formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally scheduled exam (if applicable).

*Survivors of Sexual Violence.* As a community, Carleton University is committed to maintaining a positive learning, working, and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: <https://carleton.ca/equity/sexual-assault-support-services>

*Accommodation for Student Activities.* Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation will be provided to students who compete or perform at the national or international level. Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>



## Appendix 1. Choices for Your Policy Topic

You are to select one of the following hypothetical proposals and produce a proposed approach to undertaking a comprehensive resource and environmental evaluation of the proposal. This selection must be submitted and approved by the course instructor.

### *Policy Topic 1: Opening of the 'Northwest Passage' for Commercial Use*

Warmer temperatures have already led to a seasonal opening of passages through the Arctic region connecting the Pacific region to the Atlantic region through both Canadian and Russian territories. As climate change continues to lead to the melting of the Arctic ice cap, the Canadian Federal Government has announced a call for proposals to conduct a strategic environmental assessment of the possible opening of the Passage to commercial shipping.

This proposal is required to include an overview of potential issues associated with the opening of the Passage through Canadian waters; an outline of how your firm would evaluate the potential environmental, social, and cultural impacts of such activity; how your firm would organise effective and comprehensive monitoring and evaluation, public consultations (participation); and how you would implement your proposal (your timetable). This proposal looks at the question of the commercialisation of the Northwest Passage from the Canadian perspective.

### *Policy Topic 2: Water Security: Re-Assessing the North American Water and Power Alliance (ver. 2.0)*

Weather patterns are already shifting due to climate change. The southwestern region of North America is presently experiencing a megadrought. In the United States, both Lakes Mead and Powell, which together provide water and electricity to more than 40 million people in both the USA and Mexico and to the region's multi-billion-dollar agricultural sector, are reaching critical low levels, already resulting in severe restrictions on water use. It is inevitable that the USA and Mexico will look to the freshwater resources of Canada to help address the growing (and accelerating) water crisis including not simply the extraction of freshwaters from shared watersheds, notably the Great Lakes, but also for tapping other Canadian watersheds.

In expectation of such pressures, the Canadian Federal Government is seeking to conduct an environmental assessment of the North American Water and Power Alliance (ver. 2.0) looking specifically at the Western component of the proposed continental plan. Originally proposed in 1964 by the Parsons Corporation of Pasadena, California, this plan would divert water from the Yukon, Liard, and Peace River systems into the southern half of the Rocky Mountain Trench which would be dammed into a massive, 500 mi (805 km)-long reservoir. Some of the water would then be sent east across central Canada to provide required irrigation to the Prairies as well as forming a navigable waterway connecting Alberta to the Great Lakes. The rest of the water would enter the United States in northern Montana, providing additional flow to the Columbia and Missouri–Mississippi river systems, and would be pumped over or through the Rocky Mountains via the Sawtooth Lifts in Idaho. From there, it would run south via aqueducts to the Colorado River and Rio Grande systems. Some of this water would be sent around the southern end of the Rockies in New Mexico and pumped north to the High Plains, stabilizing the Ogallala Aquifer. The increased flow of the Colorado River, meanwhile, would enter Mexico, allowing for greater development of agriculture in Baja California

and Sonora. The project would provide 75 million acre-feet (93 km<sup>3</sup>) of water to water-deficient areas in the North American continent, including Canada and the United States, as well as irrigation water for Mexico.

*Policy Topic 3: Assessing the Expansion of Atlantic Canada's Wind Energy Sector*

Increased efficiency in both wind energy turbines and battery storage technologies are expanding the potential for offshore wind energy production on both the Atlantic and Pacific coast as well, potentially in Arctic Canada. The Federal Government has released a draft policy in which it proposes the expansion of offshore wind energy industry as a key component of its efforts to shift to a carbon-free energy sector. This specific assessment focusses on the Wind Energy Sector in Atlantic Canada.

This proposal is required to include an overview of potential issues associated with such an expansion; an outline of how your firm would evaluate the potential environmental, social, and cultural impacts of such activity; how your firm would organise effective and comprehensive monitoring and evaluation, public consultations (participation); and how you would implement your proposal (your timetable).

NOTE: This assessment is for all four provinces of Atlantic Canada and not simply for Nova Scotia. Ensure that your assessment includes all four provinces.