

University of Waterloo  
Faculty of Environment

**ENBUS 408 – Best Practices in Regulation:  
Instrument Choice in Environmental Policy  
Fall Term 2021**

COURSE SYLLABUS

Course Instructor	Dan Murray
Contact Information	<a href="mailto:d.murray@uwaterloo.ca">d.murray@uwaterloo.ca</a>
Office Hours	by appointment via Bookings site
Office	EV3 4241
Synchronous Meetings	<b>In person</b> (for those taking this option): Thursday, 2:30 pm to 3:50 pm <b>Online</b> (via Teams): Thursday, 4:00 pm to 5:20 pm
Course Prerequisite	ENVS 201 (or waiver from instructor)

**NOTE:** If health guidance/protocols require the suspension of in-person classes the in-person tutorial will move online as a Teams meeting. Course content has been designed with this in mind and any change to the delivery model should not impact learning or assessment.

Course Description

This course examines the use of different forms of environmental regulatory instruments, with a focus on market instruments. The use of alternatives to traditional (command and control) instruments, such as disclosure laws, emissions trading, environmental taxes and fees (such as congestion charges) and conservation banking, has become much more prevalent in the last twenty years in both Canada and elsewhere, as regulators seek to take advantage of the efficiency gains and incentive structures that these instruments may provide.

This course will consider the underlying economic and policy reasons in support of the use of alternative forms of instruments, as well as some of the criticisms. As much of this course will focus on the underlying rationales and approaches to environmental policy approaches, the course will incorporate a number of practical exercises in policy assessment

The key learning objectives for the course are to develop an understanding of the following areas:

- Basic types of environmental regulatory instruments and the reasons for their use
- Application of cost/benefit analysis to environmental policy
- Application of foundational economic concepts to environmental policy creation
- Basic market functions and their relationship to efficiency in the context of environmental regulation
- The role of innovation in environmental policy and the role of policy in promoting innovation
- The distributive consequences of environmental policy and the role of fairness
- The implication of behavioral economics for environmental policy
- Policy transitions (how to address the winners and losers of policy decisions)

In addition to these substantive areas, the course will require students to develop a policy brief related to market instruments. The purpose of this exercise is to engage in a deeper analysis of a single instrument, as well as to learn how to develop, research and write a short policy brief.

In order to keep our discussions current, I may suggest additional readings reflecting current debates. For example, in this year's class, I will likely devote some time to examining the linkages between the COVID19 pandemic crises, and the idea of a green recovery.

### Course Materials

Required text: N. Keohane and S. Olmstead, *Markets and the Environment*, 2d. (Island Press, 2016)

The course instructor will provide supplementary material online.

### Course Structure

The first part of this course will focus on the different ways in which regulators manage the natural environment, with an emphasis on market-based instruments. The course lectures will be available on the LEARN site, and will be supplemented by synchronous discussions, as well as individual problem set assignments. The second part of the course will focus more the tools and processes of environmental policy creation and assessment. This part of the course will be project based with activities leading to the preparation of a policy brief and related advocacy tool. The project will be an individual project, but students will be encouraged to collaborate through peer review and other exchanges.

Throughout the course there will be several group exercises, which will require students to meet (remotely or in-person, depending on your course selection) to discuss and prepare exercise responses. There will be opportunities through the term for group discussions and review of materials. These will be held synchronously at prearranged times.

## **Course Evaluation**

### **Schedule**

Assignment	weighting	type	Date Handed Out	Due Date
Problem Set 1	10	Individual	September 13	September 20
Problem Set 2	10	Individual	September 27	October 4
Cost Benefit Analysis Position Letter	10	Group	September 13	September 27
Carbon emission reduction strategy	10	Group	October 18	November 1
Policy Brief			October 4	
a) Preparation assignment	10%	Individual		November 8
b) Policy brief	30%	Individual		November 22
c) Advocacy Tool	10%	Individual		November 29
Participation in class discussions and discussion boards	10%	individual	Over term	

### **Problem Sets 20% (2x 10%)**

The problem sets will review the foundational concepts introduced in the class and are geared towards ensuring that students know and understand the fundamental aspects of market regulation. Each answer set will be worth 10 %.

The purpose of the problem sets is to ensure that students have a firm grasp of foundational economic concepts and their application to the regulatory process.

### **Cost Benefit Analysis Position Letter 10%**

This is a group assignment where each group will be assigned to a stakeholder group and be required to represent the position of that group in relation to a proposal by the Government of Canada to make cost-benefit analysis a requirement for all new environmental regulations. The group must collectively prepare a letter in support of their position canvassing both arguments and against the use of CBA, but advocating for a specific position (for or against). There will be a single mark for the group, so each member should contribute substantially and equally to the assignment.

The purpose of this assignment is for students to explore the justifications and potential pitfalls of the use of CBA in a regulatory environment, as well as develop skills in the drafting of a formal submission to a Parliamentary Committee.

## **Carbon Emission Reduction Instrument Choice Assessment Assignment 10%**

This is a group assignment, where each group is required to develop a suite of regulatory tools that the Ontario government could adopt in order to address greenhouse gas emission reduction goals. The assignment will require students to identify the potential for different approaches to regulation to meet broader regulatory goals, such as effectiveness, equity concerns, innovation promotion, and compliance. The final output will be a chart identifying various regulatory approaches and assessments of those approaches.

*Note on group work:* for both group assignments groups will be required to indicate the % to which each group member contributed to the assignment. Each group should strive for equal contributions. If agreement cannot be reached as to the % assigned, members may submit their own determination of the workload distribution directly, and in confidence, to the instructor. Failure for group members to participate equally will affect their participation mark, and may result in differential marks being assessed on the group assignment.

Groups are expected to self-organize and make all reasonable efforts to accommodate one another's schedules and abilities to work remotely as a group.

## **Policy Brief 50%**

Students will be required to prepare a policy brief outlining policy options related to the adoption of a regulatory instrument or approach in response to a defined environmental problem and describing the implications for policymakers. A specific discussion of how to write a policy brief will occur in week 5. A grading template will be supplied with the assignment instructions.

The assignment has three components:

### **a) Preparation Assignment 10%**

This component requires students to answer a series of questions regarding their policy brief topic and research approach to ensure that they are proceeding with the assignment in a sound and timely manner, and will provide an opportunity for instructor and peer feedback on their chosen topic.

### **b) Policy Brief 30%**

This component is the central output and requires students to prepare a policy brief with attention to both the substance of the argument and the structure and purpose of a document intended to provide policy direction to an identified audience. The

policy brief is expected to be approximately 3000 words in length and be formatted in a way the clearly and concisely conveys information in support of an identified position.

**c) Advocacy Tool 10%**

After students have completed their policy brief, they will be required to prepare a further policy advocacy tool based on, and in support of, the brief. This could be a one or two page infographic (placemat), an op-ed (no more than 800 words), or other advocacy tool approved by the instructor.

**Participation 10%**

There will synchronous meeting throughout the term where students will be required to engaged in discussions and debate respecting identified topics relevant to the readings and issues associated with the course. The course will also use discussion boards to identify issues, current events related to the course and raise questions and contribute to discussions. Students who cannot attend synchronous activities may use the discussion boards as an alternative to the synchronous meetings, but should advise the instructor in advance.

The idea that animates the assessment of the participation requirement in this course is that each member of the course should be contributing to the learning of others.

Expectations

9+	<ul style="list-style-type: none"> <li>- able to initiate and facilitate the development of ideas</li> <li>- comments are consistently insightful and raise questions or ideas that stimulate the learning of others</li> <li>- demonstrates critical reflection on readings</li> <li>- brings relevant and interesting resources (media, cases, articles) to the attention of others</li> </ul>
7-8	<ul style="list-style-type: none"> <li>- comments and questions demonstrate some critical analysis</li> <li>- consistently shares ideas</li> <li>- effort made to build on ideas of others</li> </ul>
6-7	<ul style="list-style-type: none"> <li>- raises occasional clarifying questions and comments</li> <li>- comments often not of a critical nature and do not demonstrate integration of material</li> </ul>
Below 6	<ul style="list-style-type: none"> <li>- no consistent contribution</li> <li>- little evidence of integrated learning</li> <li>- absent from discussions</li> </ul>

## Course Communication

Communication by the instructor to students will be sent to students 'uwaterloo' email through D2L or through postings to course D2L site. Students are responsible for ensuring prompt retrieval of course messages.

## University and Faculty Requirements and Notices

- ◆ **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.  
[www.uwaterloo.ca/academicintegrity/](http://www.uwaterloo.ca/academicintegrity/)
- ◆ Students who are unsure what constitutes an academic offence are requested to visit the on-line tutorial at <http://www.lib.uwaterloo.ca/ait/>
- ◆ **Research Ethics**Please also note that the 'University of Waterloo requires all research conducted by its students, staff, and faculty which involves humans as participants to undergo prior ethics review and clearance through the Director, Office of Human Research and Animal Care (Office). The ethics review and clearance processes are intended to ensure that projects comply with the Office's Guidelines for Research with Human Participants (Guidelines) as well as those of provincial and federal agencies, and that the safety, rights and welfare of participants are adequately protected. The Guidelines inform researchers about ethical issues and procedures which are of concern when conducting research with humans (e.g. confidentiality, risks and benefits, informed consent process, etc.). If the development of your research proposal consists of research that involves humans as participants, the please contact the course instructor for guidance and see [www.research.uwaterloo.ca/ethics/human/](http://www.research.uwaterloo.ca/ethics/human/)
- ◆ **Note for students with disabilities:**The Office for Persons with Disabilities (OPD), 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 OPD at the beginning of each academic term.
- ◆ **Religious Observances**Please 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.
- ◆ **Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. 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.
- ◆ **Discipline**A student is expected to know what constitutes academic integrity, to avoid committing academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the

Undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, [www.adm.uwaterloo.ca/infosec/Policies/policy71.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm). For typical penalties check Guidelines for Assessment of Penalties, [www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm](http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm)

- ◆ **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/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)



## Detailed Course Outline

Note; lectures listed in detailed course outline will be prerecorded lectures that may be viewed asynchronously. Throughout the term, there will also be synchronous meetings to review material and engaged in discussions on identified topics and questions.

- ❖ Week 1 (September 8) –Introduction to Course and key concepts
  - Readings
    - Course Syllabus
    - Keohane and Olmstead, c.1
    - D. Fullerton and R. Stavins, (1998) “How Economists see the Environment”, *Nature*, 395
    - P. Krugman, (2010) “Building a Green Economy”, *New York Times* (skim)
    - David Victor, “Deep Decarbonization: A Realistic Way Forward on Climate Change” Yale 360, January 2020 (skim)
  - Lectures
    - Introduction to the Course
  - Activities
  
- ❖ Week 2 (September 13) - The Costs and Benefits of Environmental Protection
  - Readings
    - Keohane and Olmstead, cc.2-3
    - K. Arrow et al., (1996) “Is there a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation”, *Science*, 272, 221
    - S. Kelman, (1981) “Cost-Benefit Analysis: An Ethical Critique” *AEI Journal on Government and Society Regulation*, 5
    - L. Goulder and R. Stavins (2002), “An Eye on the Future”, *Nature*, 419
    - M Kimble and L. Tawney, “The Tale of the Fat Tail” *The Environmental Forum*, May/June 2009
    - Pizer et al., (2014) “Using and Improving the Social Cost of Carbon” *Science*, v.346, 6214. (skim)
  - Lectures
    - Economic Efficiency and the Environment
    - Cost Benefit Analysis
    - Discounting
  - Activities
    - CBA Exercise – handed out
    - Problem Set 1- handed out

❖ Week 3 (September 20) - Markets and Efficiency

- Readings
  - Keohane and Olmstead, cc. 4-5
  - N. Stern, (2007), “The Economics of Climate Change” (2006) *World Economics*, v.7(2).
- Lectures
  - Externalities and Market Failure
- Activities
  - Problem Set one due

❖ Week 4 (September 27) – Market Instruments and their Implications

- Keohane and Olmstead, cc.8-9
- N. Ashford and C. Caldert, (2008) Excerpt, “Economic Efficiency and the Technological Dynamic”, in *Environmental Law, Policy and Economics*, MIT Press
- Smart Prosperity, “Carbon Pricing and Fairness, Policy Brief, July 2011 (only read to p.7)
- Edward Rubin, “Innovation and Climate Change” in *Innovation: Perspectives for the 21<sup>st</sup> Century* (BBVA, 2011) (skim)
- M. Porter and C. Van der Linde, (1995), “Green and Competitive: Ending the Stalemate” *Harvard Business Review* (skim)
- Lectures
  - Why Market Instruments?
  - Implications of Using Market Instruments
- Activities
  - CBA Exercise due
  - Problem Set 2 handed out

❖ Week 5 (October 4) – Introduction to Policy Briefs

- Readings
  - Sample policy briefs on LEARN – please read at least 2 to 3
- Lecture
  - Researching and Drafting a Policy Brief
- Activities
  - Policy Brief Assignment Handed in

Reading Week (October 11)

❖ Week 6 (October 18) – Instrument Choice and Types of Market Instruments

- Readings
  - Keohane and Olmstead, c.10
  - Robert Stavins, “Policy Instruments for Climate Change: How Can National Governments Address a Global Problem?”, (1997) Resources for the Future, Discussion Paper 91-11.
  - N. Ashford and C. Caldert, (2008) “Economic Subsidies”, in *Environmental Law, Policy and Economics*
  - Globe and Mail, *Congestion Charges op-ed*
  - BK. Jack et al. (2007), “Designing payment for ecosystem services: Lessons from previous experience with incentive-based mechanisms”, *Proceedings of the National Academy of Sciences (PNAS)* (skim)
- Lectures
  - Examples of Market Instruments
- Activities
  - Carbon Emission Reduction Strategy Assignment handed out

❖ Week 7 (October 25) – Carbon Markets Design Issues

- Readings
  - M. Jaccard, (2016) “Want an Effective Climate Policy? Heed the Evidence” Policy Options
  - D. Victor and D. Cullanward, (2007) “Making Carbon Markets Work”, *Scientific American*, 297
  - Ecofiscal Commission, (2015) *The Way Forward for Ontario: Design Principles for Ontario’s New Cap-and- Trade System*
  - Environment and Climate Change Canada, “Carbon Pollution Pricing: Options for a Federal GHG Offset System” (2019)
- Lectures
  - Carbon market design considerations
- Activities

❖ Week 8 (November 1) Information as Regulation

- Readings
  - Weil, Graham and Fung, “Targeting Transparency”, (2013) *Science*, v.340, p.1410.
  - Kosack and Fung, (2014) “Does Transparency Improve Governance”
  - Lessig, (2009) “Against Transparency”
  - Ecojustice, Policy Brief: A New Canadian Climate Accountability Act, (2020) (skim)
- Lectures
  - Information as Regulation

- Activities
  - Carbon Emission Reduction Strategy Assignment Due
- ❖ Week 9 (November 8) – Behavioral Economics and Environmental Policy
  - Readings
    - I. Basen, “Economics has met the enemy, and it is economics”, *Globe and Mail*, October 15, 2011
    - D. Kahneman (2003), “Maps of Bounded Rationality”
    - L. Venkatachalam, (2008), Behavioral economics for environmental policy. *Ecological Economics*, 67, 4, (p. 640-645)
    - Sunstein, “Nudging: A Short Guide” (2014) 37 *J. Consumer Pol’y* 583
    - Thaler, “Nudge not Sludge” (2018) *Science*, v.361 (6401), p.431
    - Sunstein and Reisch, “Automatically Green: Behavioral Economics and Environmental Protection” (2014) 38 *Harvard Env’tl. L. Rev.* 127. (skim)
    - Hersh Shefrin, “Nudges to Improve Earth’s Climate Gain Traction”, *Forbes*, April 2019 (skim)
  - Lectures (videos)
    - Dan Ariely – Ted Talk
    - Dan Ariely – Ted Talk (Buggy Moral Code) (optional)
    - Dan Gilbert – Ted Talk - Decision-making (optional)
  - Activities
    - Policy Brief Preparation Assignment Due
- ❖ Week 10 (November 16)–Policy Transitions
  - Readings
    - Michael Trebilcock, *Dealing with Losers The Political Economy of Policy Transitions* (Oxford University Press, 2014), c.2, 10
    - James Temple, “The unholy alliance of covid-19, nationalism and climate change” *MIT Technology Review*, April 2010
    - Fred Pearce, “After the Coronavirus, Two Sharply Divergent Paths on Climate”, *Yale 360*, April 2020.
    - Beth Gardiner, “Coronavirus Holds Key Lessons on How to Fight Climate Change”, *Yale 360*, March 2020
    - David Leonhardt, “The Problem with Putting a Price on the End of the World”, *The New York Times Magazine*, April 9, 2019
  - Lectures
    - None
  - Activities
- ❖ Week 11 (November 23) – work on policy brief
  - Readings
    - None

- Lectures
  - Presenting and Advocating for Policy Change
- Activities
  - Policy Brief Due
  
- ❖ Week 12 (November 30) – work on policy brief
  - Readings
    - None
  - Lectures
    - None
  - Activities
    - Policy Advocacy Tool due