Public policy interventions are widely used to promote particular environmental management outcomes such as reduction of pollutant emissions and the sustainable management of natural species and ecosystems; they also are the subject of a large critical literature concerning their relative effectiveness and other impacts and consequences.

This course introduces many of the most widely used types of these policy instruments, criteria for comparing and evaluating them, and applied examples of each. The objective of the course is to challenge students to undertake the task of designing such instruments for use on contemporary environmental problems both within the United States and internationally.

The course is intended primarily for advanced undergraduates and graduate and professional students in Public Policy, Environmental Studies, Environmental Sciences and Engineering, City and Regional Planning, and related fields. Advanced undergraduates and graduate students in other fields may be admitted with the permission of the instructor. Since many policy instruments are based on economic incentives, it is expected that all students will be familiar with basic concepts in microeconomics and their policy applications (at least at the level of ECON 101 or PLAN 210 or equivalent; preferably ECON 310 or 410).

Readings

The course has three assigned books:


All three books are available from Student Stores. Much of the course material, however, will be drawn from articles, reports and other additional readings which will be posted on electronic library reserves or on UNC’s Blackboard course support site (http://blackboard.unc.edu), or accessed directly from Internet sites.

**Please start by going to the Blackboard site and downloading an electronic copy of the course syllabus** as soon as possible. This will allow you to access some readings directly from hotlinks in the syllabus.
Format

The course will meet for two sessions per week. The format will be a mixture of lecture and discussion, with emphasis on critical analysis of readings and discussion of issues and cases. Readings listed as “Additional background (optional)” are not required but are listed as additional references that you may find useful for further knowledge on the topic.

Class participation is an important element of the course, both in your grade and for the intellectual value of the class for everyone. It is expected that all students will come to each class having read the assigned readings, thought about the questions they raise, and prepared to participate actively in discussions. It is also expected that during class periods, everyone will devote their full attention to the class, and will refrain from competing activities such as web-surfing, emailing, texting and other competing forms of multi-tasking.

Written Assignments and Grading

Student evaluation will be based on the following:

1. Paper on price vs. quantity instruments for greenhouse gas reduction (10%)
2. A few class assignments and presentations, including debates on several topics (10%)
3. Term paper (40%)
4. Final Exam (30%)
5. Class participation (10%)

Term Paper: analysis of an environmental policy tools application. Each student is expected to develop and submit a paper examining in detail the potential for applying one or more policy instruments to correcting an environmental problem of your choice. An initial version of the paper will be submitted for review and comments, and then revised and refined before submission for final grading. The paper should show your detailed understanding of the principles involved both with the tools and with the problem to which you propose to apply them, the essential characteristics and design characteristics that would need to be considered in designing such an application, and the likely challenges that would need to be considered and planned for in making it effective and avoiding potential unintended side effects. The paper may be either a critical analysis of an existing application with your proposals for improving it; or it may propose a design for a new application of policy tools to a problem not yet well addressed by such instruments. In either case this is intended as an exercise both in critical analysis and in creative policy design, with close attention to the essential details of designing such an application.

A brief statement of your proposed topic and an initial working bibliography of anticipated reference sources will be due on Monday, February 21. A draft of the paper is to be submitted by Monday, March 28, for review and comments and a provisional grading by the instructor. Oral presentations of the highlights of the papers will be assigned in early April. The final graded version of the paper (anticipated length ~15-20 pages, but length flexible depending on what you have to say), with revisions and refinements, will be due at the final class of the semester, Wednesday, April 27.

There are many interesting current examples of environmental policy tool applications for your consideration: just a few examples include proposals for carbon taxes, tradable emission allowances, and other incentives for greenhouse gas reduction in the U.S., similar or different proposals being implemented in the European Union (and more broadly internationally), gasoline taxes to reduce carbon and other emissions, EU proposals to charge aircraft emission fees, federal and state tax credits to promote renewable energy technologies, energy efficiency and renewable energy (EE/RE) portfolio standards, “net metering,” and “public benefit funds” (taxes on energy
use to subsidize EE/RE technologies), payments for ecosystem services for forest conservation and watershed protection (and carbon offset credits), extended producer responsibility mandates for product wastes over their full life cycles (e.g. for packaging, and for computers and other electronic products), pollution credits with developing countries (REDD to sequester carbon by preventing deforestation, emissions credits to reduce ozone-layer depleting chemicals such as CFCs), liability and insurance policy proposals for dealing with the prospect of sea-level rise and other issues, subsidies and tax credits of various sorts for combining economic recovery stimulus with environmental goals, and many others. Please see the instructor about these or other ideas for topics.

**Documenting source materials and avoiding plagiarism**

It is very important that you develop good habits of documenting the sources of both factual statements and the ideas and arguments of other people that you use in any paper you write. One basic reason for this is to be able to support the statements you make and the facts you use, both for your own future use and if anyone else should question or disagree with them. A second is to distinguish clearly between someone else’s ideas and arguments and your own, and not confuse the two. And a third is to protect your own integrity against either deliberate or accidental representation of someone else’s ideas or work as your own, which if intentional is known as plagiarism and is a serious violation of the UNC Honor Code and of the standards of ethical writing.

**Please read the handout on the Blackboard site** for more detailed suggestions on this subject. For additional detail on proper citation, plagiarism, and proper use of other authors’ materials, see [http://www.unc.edu/depts/wcweb/handouts/plagiarism.html](http://www.unc.edu/depts/wcweb/handouts/plagiarism.html). For an excellent discussion of criteria for evaluation of the quality of source materials on Internet web sites, see [http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Evaluate.html](http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Evaluate.html). For handouts on other good writing practices, see [http://www.unc.edu/depts/wcweb/handouts/](http://www.unc.edu/depts/wcweb/handouts/).
CLASS SESSIONS AND READINGS

1/10 Introduction; course overview; NC climate policy example

1/12 Overview of environmental policy instruments

Sterner 67-70

Additional background (optional):

1/17 No class (MLK holiday) – read Pearce.

1/19 Valuing Environmental Assets


Additional background (optional):
Frank Convery commentary on David Pearce (Kyoto, July 2006)
Professor David Pearce (obituary, 2005)

1/24 Criteria and behavioral barriers: what makes a good environmental policy instrument?

Assignment: Using the blank options matrix available below, list the criteria you would use to evaluate the desirable characteristics and strengths and weaknesses of an environmental policy instrument. Print out a copy with your name on it to turn in.

W. K. Kellogg Foundation. The options evaluation matrix. (skim as example; do not assume that you would use the same criteria for an environmental policy instrument). On line (accessed January 3, 2011) at http://ww2.wkkf.org/advocacyhandbook/page4b3.html

Blank options matrix: http://ww2.wkkf.org/advocacyhandbook/docs/Blank_Options_EvaluationMatrix.doc

Regulatory instruments

What kinds of regulatory tools are used as environmental policy instruments? Make a list of as many different types of environmental regulations (not just specific laws or regulatory programs) as you can think of (to discuss and turn in). What are the pros and cons of using regulations as a primary instrument of environmental policy?


Harrington/Morgenstern/Sterner (HMS) chap. 1 (SO\textsubscript{2} emissions in Germany), chap. 3 (industrial water pollution in the US)

Environmental taxes, charges, and fees

What are environmental taxes, charges, and fees, and what are the essential differences among them; and what especially is a “Pigovian” tax? What are their main arguments for and against taxes, charges and fees as environmental policy instruments? What effects would you expect them to have on environmental outcomes? On the behavior of individuals and businesses subject to them? On revenues? Innovation?

Sterner, Chapter 8, p. 94-101.


Additional background (optional):
972898e0b7&amp;k=38130

**Additional background (optional):**

2/7 **Debate: environmental taxes and charges**

What are the advantages and disadvantages of the federal and state taxes on gasoline as an environmental policy tool? What purpose(s) does it serve and how well does it serve them, and what would be the potential consequences of increasing it (or alternatively, capping it – see Siceloff 2011 below)?


**Additional background (optional):**

2/9 **Expenditures, investments, subsidies, rebates**

What are the differences among government expenditures, investments, subsidies, rebates, and “tax breaks?” What are the pros and cons of using these sorts of instruments to achieve environmental policy goals? What important criteria and questions must be applied to them? (for example, who should pay for them, what incentives do they create, and should the costs of environmental services to the poor, or of environmental policy impacts on the poor, be subsidized, among other questions?)

Is the stimulus funding an investment or a subsidy? Can the Obama administration and the Congress simultaneously provide both immediate economic stimulus and the foundations for a longer-term transition to a greener economy, particularly in the energy
and motor vehicle sectors?

Sterner, Chapter 9, p. 102-108.
Climate change: Why a verdant New Deal would be a bad deal. The Economist, Nov. 6, 2008. On Blackboard.
The Economist, April 8, 2009. The grass is always greener: Saving the planet and creating jobs may be incompatible. On Blackboard.

Additional background (optional):

2/14 Topic statement and initial working bibliography due

2/14 Debate: subsidies, public investments, and tax breaks

Discussion/debate: How would you distinguish between “good” and “perverse” subsidies? (Examples to be provided)

2/16  Tradable permits

What are tradable environmental permits, and how many different kinds can you think of? How are they similar to and different from environmental taxes, charges or fees? What are the essential considerations in designing effective cap-and-trade programs, and under what circumstances would you choose them (or not choose them) in comparison with an environmental tax? Why have tradable permits worked better for air pollution than water pollution, and what lessons might one learn from this difference?


Additional background (optional):

2/21  Paper due (~5 pp.): compare price vs. quantity control approaches for GHG reduction

2/21  Debate: Price vs. quantity controls for greenhouse gas reduction


Additional background (optional):
Carbon emissions: offsets trading

Guest: Professor Pam Jagger

Some commentators have described offsets as “an absolutely essential element” of greenhouse-gas trading systems, and of other emissions trading schemes as well; others have been highly skeptical of them. Examples so far include both demonstrable successes and serious unresolved problems. What are emissions offsets, what various kinds are there, and what are the essential design considerations for each type to work effectively for their intended purposes? How would REDD+ need to be designed to be an effective tool for protecting tropical forests and not merely to be gamed by a new generation of forest-extraction business strategists?

Center for International Forestry Research (CIFOR). (no date). Simply REDD: CIFOR’s guide to forests, climate change, and REDD. On Blackboard.


Pearce, Fred. 2010. Will REDD Preserve Forests Or Merely Provide a Fig Leaf? *Yale 360*, on Blackboard and on line at [http://www.e360.yale.edu/content/feature.msp?id=2277](http://www.e360.yale.edu/content/feature.msp?id=2277)

**Additional background (optional):**


**Optional: consumer purchase options for carbon offsets**


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2/28  **Markets for Ecosystem Services**

In addition to carbon, a major new category of environmental policy instruments has recently developed in the form of “markets for ecosystem services.” What are ecosystem services, and what are the essential elements necessary to create markets for them? Is the Catskills example a good example of an ecosystem services market (why or why not)? What fundamental questions underlie the creation and design of such markets, and what are their advantages, disadvantages, and unresolved issues?


Additional background (optional):

3/02 Markets for Ecosystem Services

Guest: Professor Jim Salzman (Duke Law)


3/7, 3/9 No class (spring break)

3/14 Information tools: disclosure/reporting (cases: US Toxics Release Inventory, Indonesia’s PROPER program)

How do information disclosure and reporting requirements function as an environmental policy tool? Examples? What are their strengths and limitations?

EPA. The Toxics Release Inventory. http://www.epa.gov/tri/triprogram/whatis.htm

Additional background (optional):
3/16  Guest speaker on Ecosystem Services (Dr. Morgan Robertson)

3/21  Insurance

Guest: Professor Don Hornstein (UNC Law)

How does insurance function as an environmental policy tool, and how can it be designed to function as an effective tool and not create perverse incentives?

Hornstein, Donald T. Climate Change and Insurance: An Introduction. (working paper, 9 pp., on Blackboard)

Additional background (optional):

3/23  Information tools: labeling (cases: “ecolabels,” “carbon footprint” labels)

How do environmental labeling programs function as an environmental policy tool? What different types of labels are there, and what important differences exist among the characteristics of each of these types and their related design considerations? Examples? What are the main strengths and limitations of each?

Sterner, pp. 122-26

**Additional background (optional):**


**3/28 Draft research papers due**

**3/28 Product responsibility (life-cycle analysis, extended producer responsibility, liability)**

What is “extended producer responsibility,” and how might it serve as an environmental policy tool? What design issues would be involved – for instance, in EPR for electronics products, a major and growing category of toxic waste products – and how would you design an effective EPR system for electronic wastes?

What are the advantages and disadvantages of imposing clearer liability for environmental consequences more generally as an environmental policy tool?


Sterner, Chapter 10, p. 115-119.


**Additional background (optional):**


**3/30 “Voluntary” approaches**

What is a “voluntary” approach as an environmental policy tool, and what are its strengths and limitations?
Choice architecture (“nudges”)

How does purposely designing the architecture of people’s choices – “nudging” those of individuals, and also those of businesses and other organizations – function as an environmental policy instrument? What are its strengths and limitations? How good are the examples in their “Saving the Planet” chapter, and can you think of better ones? What is the promise and what are the limits of this approach?


Additional background (optional):


State level instruments

How does the range of environmental policy instruments, and instrument selection processes, by state and local governments differ from national policymaking? What differences must be recognized in the context for policymaking? In state and local powers? In opportunities and limitations for using policy tools? What are the advantages and disadvantages of state and local environmental policy tools as opposed to national ones?


Additional background (optional):


International applications

How would you expect the choices of environmental policy tools to differ in different countries and cultures (or do they)? What do Blackman and Harrington conclude, and why might you agree or disagree with them? What differences would you expect to need to address, and what similarities both in the tools and in the processes for selecting them? What can we learn from the experiences of other countries and cultures about the advantages, disadvantages, and essential elements of environmental policy tools?


**Additional background (optional):**

Browse international examples in Sterner, e.g. Chap. 24 (pp. 278-315), Chap. 25 (pp. 316-342) and Part VI (pp. 346-429)


*(Optional) Instrument combinations; institutional challenges to instrument choice*

When does it make sense to combine multiple environmental policy instruments, instead of just one? How might one go about doing so? Why are particular tools chosen or not? Why do environmental policy tools succeed or fail (different tools in same setting, same tools in different setting)? Can tools be transferred from a “successful” case to other settings?

Sterner Chap. 18, Design of policy instruments, pp. 212-218
Sterner Chap. 32, Policy issues and potential solutions, pp. 432-447


4/13 Presentations
4/18 Presentations
4/20 Presentations
4/25 Presentations

4/27 Final papers due

4/27 Presentations; concluding discussion

**Additional background (optional):**
How is Jackson’s argument similar to or different from David Pearce’s, with which we began the semester? Lessons?

4/29 FINAL EXAM: Friday, April 29, 4:00-7:00 p.m.

A few other useful web sites (multiple documents on each):

Resources for the Future: http://www.rff.org/Publications/Pages/default.aspx (See separate sections for discussion papers, RFF reports, issues briefs, etc., or search by keyword or author)

Prof. Tom Tietenberg’s home page: http://www.colby.edu/personal/t/tthtieten/ (Includes additional papers on applications of emissions trading and other economic incentive tools to environmental issues, particular several very interesting papers on applications to greenhouse-gas emission trading schemes).

Prof. Robert Stavins’ on-line environmental economics and policy publication list: http://www.hks.harvard.edu/fs/rstavins/cvweb.html


Environment and Economy Program for Southeast Asia (EEPSEA): http://www.idrc.ca/eepsea/ev-23223-201-1-DO_TOPIC.html


Ecosystem Marketplace web site (resources on payment system design for ecosystem services) http://ecosystemmarketplace.com/