

SEE8124 Introduction to Emissions Trading

Course Title:	Introduction to Emissions Trading
Course Code:	SEE8124
Course Duration:	One semester
Credit Units:	3
Level:	R8
Medium of Instruction:	English
Prerequisites:	N/A
Precursors:	SEE5101 Energy and Environmental Economics OR SEE8123 Energy and Environmental Economics
Equivalent Courses:	SEE6117 Introduction to Emissions Trading
Exclusive Courses:	N/A

Course Aims

This course aims to familiarize students with the practice of, and the reasons for, defining legal “rights to pollute” – permits to emit pollutants – and of facilitating trading of those rights and permits in markets constructed for the purpose. It will describe the history of efforts to regulate the release of pollutants with special attention to the problem of greenhouse gases or “carbon dioxide equivalents”. It will explain the economic theory of efficient regulation and why economists argue that the most efficient regulation is either a tax or a pollution rights permitting and trading system. It will describe the history of research, development and implementation of tradable emissions schemes, with particular emphasis on those defined under the Kyoto Protocol and the European Union Emissions Trading System. It will explain derivatives and the workings of emissions permit markets, including the key functions of certification and monitoring. It will examine the experience and the empirical data on emissions trading systems. It will call on students to discuss and debate, and innovate regulatory and market instruments to address such issues as: a tax versus an emissions permitting system; how to make the initial allocation of permits; and, what role emissions trading should play in post-Kyoto international climate policy.

Course Intended Learning Outcomes (CILOs)

(state what the student is expected to be able to do at the end of the course according to a given standard of performance)

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting (if applicable)
1.	Describe the evolution of regulations to control emissions of pollutants	10%
2.	Explain the reasons why some types of regulation are more economically efficient than others, and how innovative forms of property rights have been defined to solve environmental problems	10%
3.	Provide an account of the causes for concern about the role of emissions of carbon dioxide and other greenhouse gases (GHGs) into the atmosphere, and the argument for international governmental regulation	10%
4.	Describe and analyze the characteristics of a generalized emissions trading scheme; create ways to discover the true shadow price of emissions	10%
5.	Describe the specific features of the emissions trading schemes under the 1997 Kyoto Protocol and the EU Emissions Trading System	10%
6.	Explain and analyze terminology associated with emissions trading systems including such terms as additionality, JI, CDM, REDD, “hot	10%

	air”, UNFCCC, COP-1, COP-2 etc.	
7.	Describe and analyze the problem of the initial allocation of permits	10%
8.	Describe the various participants in emissions markets, including buyers and sellers of permits, certifiers, exchanges, etc., and their interaction	10%
9.	Describe the results to date of the operations of emissions markets and analyze the reasons for their successes and failures	10%
10.	Describe and analyze proposals for the future of GHG emissions trading	10%

Teaching and Learning Activities (TLAs)

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	TLAs
All CILOs	Classroom lectures
All CILOs	Videos and other visual aides
All CILOs	In-class student debates of controversial topics
All CILOs	Individual and group projects for class presentation
All CILOs	Homework problems for discussion and solution
All CILOs	In-class midterm and final examinations

Assessment Tasks/Activities

(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	Type of Assessment Tasks/Activities	Weighting (if applicable)	Remarks
CILO 1-8	Homework problems, exams, in-class debate, student project		
CILO 9	In-class debates		

Standard of Passing a Course

To pass a course, as student must do ALL of the following:

- Obtain at least 30% of the total marks allocated towards coursework (combination of assignments, pop quizzes, term paper, lab reports and/ or quiz, if applicable); and,
- Obtain at least 30% of the total marks allocated towards final examination (if applicable); and,
- Meet the criteria listed in the section on Grading of Student Achievement

Grading of Student Achievement: Refer to Grading of Courses in the Academic Regulations (Attachment) and to the Explanatory Notes.

Letter Grade	Grade Point	Grade Definitions	
A+	4.3	Excellent:	Strong evidence of ability to describe, analyze and debate the features of emissions trading systems and their advantages and disadvantages compared with other pollution control systems, both incentives-based and command-and-control.
A	4.0		
A-	3.7		
B+	3.3	Good:	Evidence of ability to describe and analyze the features of emissions trading systems and their advantages and disadvantages compared with other pollution control systems.
B	3.0		
B-	2.7		
C+	2.3	Adequate:	Evidence of ability to describe the features of emissions trading systems and to distinguish them from other pollution control systems.
C	2.0		
C-	1.7		
D	1.0	Marginal:	Evidence of ability to describe the features of

			emissions trading systems.
F	0.0	Failure:	Little evidence of familiarity with the subject matter.

Part III

Keyword Syllabus

1. Review of history of emissions pollution regulation; command-and-control regulation; implicit assignment of property rights; emissions rights proposals; emissions permitting systems history; cap-and-trade.
2. Description and analysis of historical and current issues addressed by emissions trading systems; review of the current science of climate change; greenhouse gases and climate forcing.
3. Economics of emissions trading systems; externalities; internalizing externalities; economic efficiency; economic advantage of market solutions.
4. Brief introduction to commodity trading; derivatives; futures; exchanges; trading exchanges for carbon credits.
5. Problems of emissions permitting system design; initial allocation; banking; certification and monitoring.
6. History and design of the Kyoto Protocol greenhouse gas trading system; joint implementation (JI); clean development mechanism (CDM); reductions of emissions from deforestation and degradation (REDD); additionality; “hot air”.
7. Systems for Kyoto Protocol implementation in different countries; the European Union emissions trading system; results to date.
8. Prospects and proposals for future emissions trading.

Recommended Reading

Text(s)

Excerpts from books and papers which may include but are not limited to:

Thomas H. Tietenberg, *Emissions Trading: Principles and Practice* (Washington D.C.: Resources for the Future Press, 2006).

Joseph E. Aldy and Robert N. Stavins, *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement* (Cambridge University Press, 2010)

Coniff, Richard (Aug. 2009). "The Political History of Cap and Trade" (<http://www.smithsonianmag.com/science-nature/Presence-of-Mind-Blue-Sky-Thinking.html?c=y& page=3>). *Smithsonian Magazine*. Retrieved 1-13-2011

A. Denny Ellerman, Frank J. Convery, Christian de Perthuis et al., *Pricing Carbon: The European Union Emissions Trading Scheme* (Cambridge: Cambridge University Press, 2010).

Fred Krupp, “The Making of a Market-Minded Environmentalist”, *Strategy & Business*, issue 51, Summer 2008

Farhana Yamin, *Climate Change and Carbon Markets: A Handbook of Emissions Reduction Mechanisms* (London: Earthscan, 2005)

Bernd Hansjürgens, *Emissions trading for climate policy : US and European perspectives* (Cambridge, UK ; New York: Cambridge University Press, 2005).

Organisation for Economic Co-operation and Development, *Tradeable permits policy evaluation, design and reform* (Paris: OECD, 2004).

Organisation for Economic Co-operation and Development. and Concerted Action on Tradeable Emissions Permits., *Greenhouse gas emissions trading and project-based mechanisms proceedings, OECD Global Forum on Sustainable Development, Emissions Trading, CATEP Country Forum, 17-18 March 2003, Paris* (Paris: Organisation for Economic Co-operation and Development, 2004).

Jon Birger Skjærseth, Jørgen Wettestad and ebrary Inc., *EU emissions trading initiation, decision-making and implementation* (Burlington, VT: Ashgate Pub. Company, 2007).

A. Denny Ellerman, Barbara Buchner, Carlo Carraro and ebrary Inc., *Allocation in the European Emissions Trading Scheme rights, rents and fairness* (Cambridge: Cambridge University Press, 2007).

International Energy Agency., *Act locally, trade globally emissions trading for climate policy* (Paris: International Energy Agency, 2005).

Sonia Labatt and Rodney R. White, *Carbon finance: the financial implications of climate change* (Hoboken, N.J.: John Wiley & Sons, 2007).

Andrew J. Hoffman, *Carbon Strategies: How Leading Companies Are Reducing Their Climate Change Footprint* (Ann Arbor: University of Michigan Press, 2007).

Ricardo Bayon, Amanda Hawn, Katherine Hamilton and ebrary Inc., *Voluntary carbon markets an international business guide to what they are and how they work* (London ; Sterling, VA: Earthscan, 2007).