

Carbon Management and Finance 425.605
Johns Hopkins Masters Program in Energy and Climate Policy
Summer Semester 2013: June 5th – August 21st

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CLASS HOURS: Wednesdays, 6pm – 8:45pm

COURSE DESCRIPTION:

The course aims to provide students with working knowledge of environmental commodities, particularly emissions trading with a focus on carbon markets in the United States and around the world. The course has a practical focus and will use existing markets and real-world case studies to highlight different regulatory approaches, project types and analysis tools.

The first part of the course will provide an overview of environmental markets - starting with the emergence of the 'cap-and-trade' concept as embodied in the US EPA's acid rain program - and exploring market-based emission reduction, renewable energy promotion, and energy efficiency programs

The second part of the course focuses on carbon markets around the world, with each lesson going into depth on a different established regional program and its structure including the EU Emissions Trading Scheme as well as three North American programs.

In its third section, the course will turn to new market approaches outside the scope of established carbon trading schemes, including voluntary offset projects worldwide, efforts to credit avoided deforestation, attempts to curtail emissions from the shipping and aviation sectors via markets, and new market approaches to use markets in addressing water pollution.

The lectures will be supplemented by guest experts who are practitioners in the respective market - they will explain the relationship to environmental commodities in the world of business and finance.

ASSESSMENT:

Class participation	25% of grade	Being in class, on time, participating in and contributing to discussion
Assignments (2)	25% of grade	Choose group or individual – all members of group will receive same grade. Both assignments are small take-home “research projects,” one involves brief presentation of findings to class.
Tests (mid-term and final)	25% of grade	Old school exam-style: in class, hand-written answers, no notes, no looking up stuff online! Midterm (July 17) covers material from Lessons 1-6, final (August 21) covers material from Lessons 7-11.
Final project/presentation	25% of grade	Group research project with 15-minute presentation on last day of class.

UNIVERSITY POLICIES

This course adheres to all University policies described in the academic catalog. A few to pay close attention to are noted below.

JHU Ethics Statement: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Report any violations you witness to the instructor.

Plagiarism: The copying or use of others’ work without proper attribution and citation as part of any class assignment will constitute plagiarism. Any incidence of plagiarism or other instances of academic misconduct will be dealt with in accordance with Johns Hopkins University policies without any initial warning.

Please read and adhere to JHU’s policy: <http://advanced.jhu.edu/students/plagiarism/>

Dropping the Course: You are responsible for understanding the university’s policies and procedures regarding withdrawing from courses. You should be aware of the current deadlines and penalties for dropping classes.

Students with Disabilities: The Johns Hopkins University is committed to providing reasonable and appropriate accommodations to students with disabilities. Students with documented disabilities should contact Denise O’Sullivan at dosullivan@jhu.edu

Further information and a request for accommodation form can be found at:

<http://advanced.jhu.edu/students/disability-accommodations/>

COURSE OVERVIEW

Part 1: Environmental commodities – using markets to cut pollution

June 5-26

- Economic principles of a market approach
- From early emissions markets to a global climate change treaty (SO_x and NO_x trading, the Kyoto Protocol and CDM)
- Renewable energy credit trading and energy efficiency markets
- Basics of commodity markets and energy trading

Assignment 1: US green power market profile

Part 2: The biggest environmental markets – carbon trading

July 3-31

- Key carbon market structural elements, overview of carbon markets around the world
- The EU Emissions Trading Scheme: price drivers and market dynamics

In-class test

- The Regional Greenhouse Gas Initiative and Alberta's intensity-based program
- Introduction to the California carbon market

Assignment 2: country carbon market design

Part 3: New market mechanisms, projects and investment

July 31-August 21

- Carbon offset details, project cycle and verification, voluntary carbon markets
- Market-based approaches in new sectors: avoided deforestation, shipping and aviation
- Trading regimes to address water pollution
 - *In-class test, presentation of final group projects*

READINGS

The readings for the course are all available in electronic form on the course Blackboard site, under the “Readings” tab. Additional course documents (recent reports or articles on relevant subjects) will be uploaded and/or hyperlinked by the instructor.

Lesson 1: June 5

- Excerpts from Good Derivatives by Richard Sandor: “Environmental Finance” (pages 205-211)
- Info about SO2 trading: <http://www.epa.gov/airmarkets/progsregs/arp/s02.html> as well as <http://www.epa.gov/airmarkets/progsregs/arp/docs/clearingtheair.pdf> and <http://www.epa.gov/captrade/documents/arbasics.pdf>
- Factsheet about status of acid rain program in the courts: <http://www.epa.gov/crossstaterule/pdfs/CSAPRFactsheet.pdf> and http://www.evomarkets.com/pdf_documents/U.S.%20Emissions%20Market%20Resets%20with%20New%20Clean%20Air%20Rules.pdf as well as <http://www.evomarkets.com/desks/emissions/post/6018>)
- Info about the RECLAIM market: <http://www.aqmd.gov/reclaim/reclaim.html> and http://www.aqmd.gov/reclaim/rtc_main.html

Lesson 2: June 12

- Spend time looking through the [DSIRE website](#) – go to individual states’ RPS structures, see how and to what extent they allow REC trading
- India’s PAT scheme ([India: Market Mechanism to Promote Energy Efficiency and Renewables](#))
- Attempts to set up white tag markets in the US: <http://www.realenergywriters.com/ee-blog/tag/white-tags/> and Sterling Planet PPT on White Tags and RECs http://aceee.org/files/pdf/conferences/eer/2009/5A_Hathaway.pdf
- Energy efficiency markets in the US: http://www.evomarkets.com/pdf_documents/Evolution%20Markets%20Executive%20Brief%20Energy%20Efficiency%20Credits%20View%20for%20Next%20Big%20Thing%20Status.pdf

Lesson 3: June 19

Assignment 1

Lesson 4: June 26

- Good Derivatives excerpt, pages 540-545
- Browse the ICAP ETS around the world map (http://icapcarbonaction.com/index.php?option=com_wrapper&view=wrapper&Itemid=147) look at details (allocation, offset use) of at least 2 existing ETS
- World Bank's State of the Carbon Markets last year: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/State_and_Trends_2012_Web_Optimized_19035_Cvr&Txt_LR.pdf

Lesson 5: July 3

- Triplepundit blog piece <http://www.triplepundit.com/2010/03/carbon-markets-trading-to-stop-climate-change/>
- EU Commission's brochure on the EU ETS: http://ec.europa.eu/clima/publications/docs/ets_en.pdf

Lesson 6: July 10

- Explanation of RGGI <http://www.imf.org/external/np/g20/pdf/110411a.pdf>
- RGGI market brief, latest version to be supplied by instructor
- Alberta GHG intensity reduction program: <http://environment.alberta.ca/01838.html> and other documents to be supplied by instructor

Lesson 7: July 17

- Users' guide to the California carbon market (PDF)
- Market surveillance http://www.arb.ca.gov/cc/capandtrade/market_oversight.pdf
- Other readings on Quebec, supplied by instructor

Lesson 8: July 24

- Point Carbon's annual survey "Carbon 2013"
(http://www.pointcarbon.com/polopoly_fs/1.2238331!Carbon%202013%20-%20At%20a%20tipping%20point.pdf)

Assignment 2

Lesson 9: July 31

- State of the voluntary carbon market, state of the forest carbon market (2013 edition not published yet, but will be by class time)
- The Little REDD book:
(http://www.theredddesk.org/sites/default/files/lrb_en.pdf)
- Aviation and maritime emissions: C2ES paper 2009
(<http://www.c2es.org/docUploads/aviation-and-marine-report-2009.pdf>) and IMF report 2011 (<http://www.imf.org/external/np/g20/pdf/110411a.pdf>) especially market-based mechanisms in shipping, pages 46-50

Lesson 10: August 7

- Business Opportunities in the Carbon Market (2008)
- Additional readings to be supplied by instructor closer to class date

Lesson 11: August 14

Final group project