Course and Instructor Information

Instructor Information
Instructor: Ashley Lawson
Telephone Number: 202-460-5702
Email Address: alawso16@jhu.edu
Office Hours: By appointment and via phone, virtual, or in-person

Course Description
This course introduces students to environmental markets and the policies that create them, focusing mainly on emissions trading systems to mitigate climate change. The course also provides an introduction to attributes of the financial sector through its analysis of markets for environmental commodities. Students learn the economic theory behind market-based environmental policy instruments, such as tradable renewable energy credits, carbon offsets, and water rights in a semester of lectures featuring presentations from practitioners, including state and federal government, private companies subject to market-based emissions regulation, commodity brokers, and representatives from international institutions. Offered online on-site twice per year.

Course Goals & Learning Objectives
By the end of this course, you will be able to:

• Explain the economic theory behind market-based environmental policies
• Understand the function of financial instruments such as derivatives and green bonds
• Understand the interconnectedness of energy and environmental markets
• Describe the history and current status of at least three environmental markets operating in the U.S. or other countries
• Analyze how different types of finance tools can reduce emissions in different economic sectors

Course Materials
Textbooks
There are no textbooks required for purchase for this course. The readings for the course will be provided as links to free online documents. When not available via the Internet, documents will be made available in electronic form on the course Blackboard site, under the “Readings” tab.
Other equipment/software/websites/online resources
This course requires the use of the following resources:
• Access to a computer with an Internet browser

Specific Technology Requirements & Skills for this Course
Learning online requires some basic knowledge of computer technology. At a minimum, you need to be able to:
• Navigate in and use Blackboard; the Blackboard Student Orientation course on your "My Institution" page
• Create and save MS Word documents; review MS Word training and tutorials for PC users (all versions); Word Help for Mac users
• Find basic resources on the Internet
• Create and organize files & folders on your computer
• Send, receive, and manage email
Assignments

In the table below, you will find a brief description of the various assignments in this course including due dates, assignment weights, and frequency.

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Due Dates</th>
<th>Assignment Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course engagement – arrive on time, be able to answer questions about the assigned reading for the class, contribute the class discussion</td>
<td>Continuous</td>
<td>20%</td>
</tr>
<tr>
<td>Small group assignments – mini research projects including an in-class presentation. All members of the group will receive the same grade</td>
<td>One per person; dates to be assigned after 1st week of class</td>
<td>20%</td>
</tr>
<tr>
<td>Quizzes – multiple choice/short answer quizzes to test comprehension of vocabulary and basic ideas</td>
<td>3 per semester; dates to be confirmed 1 week before quiz</td>
<td>30%</td>
</tr>
<tr>
<td>Individual research project – research project including written submission and in-class presentation</td>
<td>Last two weeks of course</td>
<td>30%</td>
</tr>
</tbody>
</table>

Grading Policy

Final course grade will be determined by a weighted average of the letter grades of the above assignments.

Course engagement – One point subtracted from 100% for each instance of tardiness or inability to answer questions about assigned reading. Students who fail to consistently contribute to class discussion will receive one partial letter grade deduction in final value. Letter grades will be assigned according to the table below.

Small group assignments – Graded according to the scale below.

Quizzes – Graded on a percentage scale with each response worth equal weight, unless otherwise noted. Failure to complete a quiz (for example, by unexcused absence) will result in a number grade of 0. Each individual quiz will contribute 10% to overall semester grade. Letter grades will be assigned according to the table below.

Individual research project – Graded according to the scale below.

Grading scale for research assignments with in-class presentation

A+: Presentation demonstrates research from readings above and beyond class assignments and includes citations as appropriate; student connects topic of research assignment to material from class lecture; all other requirements (ie, length) are completed fully
B+: Presentation either does not include research from non-assigned readings or fails to cite them; student connects topic of research assignment to material from class lecture; all other requirements (ie, length) are completed at least in part
C: Presentation fails to include research from non-assigned readings and fails to connect material from class lecture; all other requirements (ie, length) are completed at least in part
F: Presentation is not completed and/or fails to meet assigned requirements

Grading table for assignments given a numeric score

- A+ 98% to 100%
- A 94% and less than 98%
- A- 90% and less than 94%
- B+ 88% and less than 90%
- B 84% and less than 88%
- B- 80% and less than 84%
- C 70% and less than 80%
- F 0% and less than 70%

This course will follow the Advanced Academic Programs Grading Policies.

Assignment Submission for Individual Research Project

Students are required to adhere to the following guidelines when submitting written work:

- Use APA format
- Limit word count to 2,000 words (excluding citations)
- Cite sources properly

Course Policies

Course Participation

Participation Requirements
You are expected to log into Blackboard regularly throughout the week - a daily check-in is recommended. It is your responsibility to read all announcements and discussion postings within your assigned forums. You should revisit the discussion multiple times over the week to contribute to the dialogue.

Group Work
Group work may be assigned as part of this course. If group work is required, you are expected to work equitably within your group to complete collaborative group activities. If group work is assigned, you will have an opportunity to privately rate your own participation and that of your group-mates.

Online Etiquette
In this course, online discussion will primarily take place in our online discussion board. In all textual online communication, it is important to follow proper rules of online etiquette -
communicating with others in a proper and respectful way. For helpful tips, please these Ground Rules for Online Discussions.

Course Protocols and Getting Help
Amenements to the Course
Changes to the course will be posted in the Announcements section of your course. Please check announcements every time that you log into your online course.

Course Communication
You should communicate often with your classmates and the instructor. The majority of communication will take place within the Discussion forums. When you have a question about an assignment or a question about the course, please contact your instructor, or post your question in the course’s “Syllabus & Assignment Question” forum.

Email Communication
For questions regarding course activities and assignments that would be general interest to other students, please post those in the Discussion forum. If you have a question regarding course activities and assignments of a personal nature, please send an email message to the instructor and observe the following guidelines:

- Include the title of the course in the subject field (e.g., JHU Insert Name of Course).
- Keep messages concise, and check spelling and grammar.
- Sign your full name (the sender’s email is not always obvious).

Feel free to contact your instructor with comments, questions, and concerns. All email messages will be sent to you via your JHU email account, so you should be in the habit of checking that account every day or you should ensure that your JHU email account forwards messages to another account of your choice.

Email messages will be responded to within 24-48 hours.

University Policies
General
This course adheres to all University policies described in the academic catalog. Please pay close attention to the following policies:

Students with Disabilities
Johns Hopkins University is committed to providing reasonable and appropriate accommodations to students with disabilities. Students with documented disabilities should contact the coordinator listed on the Disability Accommodations page. Further information and a link to the Student Request for Accommodation form can also be found on the Disability Accommodations page.
Ethics & Plagiarism

**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. Read and adhere to JHU’s [Notice on Plagiarism](#).

Dropping the Course
You are responsible for understanding the university’s policies and procedures regarding withdrawing from courses found in the current catalog. You should be aware of the current deadlines according to the [Academic Calendar](#).

Getting Help
You have a variety of methods to get help on Blackboard. Please consult the resource listed in the "Blackboard Help" link for important information. If you encounter technical difficulty in completing or submitting any online assessment, please immediately contact the designated help desk listed on the [AAP online support page](#). Also, contact your instructor at the email address listed in the syllabus.

Copyright Policy
All course material are the property of JHU and are to be used for the student's individual academic purpose only. Any dissemination, copying, reproducing, modification, displaying, or transmitting of any course material content for any other purpose is prohibited, will be considered misconduct under the [JHU Copyright Compliance Policy](#), and may be cause for disciplinary action. In addition, encouraging academic dishonesty or cheating by distributing information about course materials or assignments which would give an unfair advantage to others may violate AAP’s Code of Conduct and the University’s Student Conduct Code. Specifically, recordings, course materials, and lecture notes may not be exchanged or distributed for commercial purposes, for compensation, or for any purpose other than use by students enrolled in the class. Other distributions of such materials by students may be deemed to violate the above University policies and be subject to disciplinary action.

Code of Conduct
To better support all students, the Johns Hopkins University non-academic [Student Conduct Code](#) has been integrated and updated to include all divisions of the University. In addition, it is important to note that all AAP students are still accountable for the Code of Conduct for Advanced Academic Programs.

Title IX
Confidentiality and Mandatory Reporting
As an instructor, one of my responsibilities is to help create a safe and inclusive learning environment on our campus. I also have mandatory reporting responsibilities related to my
role as a Responsible Employee under the Sexual Misconduct Policy & Procedures (which prohibits sexual harassment, sexual assault, relationship violence and stalking), as well as the General Anti-Harassment Policy (which prohibits all types of protected status based discrimination and harassment). It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent possible. However, I am required to share information that I learn of regarding sexual misconduct, as well as protected status based harassment and discrimination, with the Office of Institutional Equity (OIE). For a list of individuals/offices who can speak with you confidentially, please see Appendix B of the JHU Sexual Misconduct Policies and Laws. For more information on both policies mentioned above, please see: JHU Relevant Policies, Codes, Statements and Principles. Please also note that certain faculty and other University community members also have a duty as a designated Campus Safety Authority under the Clery Act to notify campus security of certain crimes, as well as a duty under State law and University policy to report suspected child abuse and/or neglect.
Appendix A
Course Topics & Readings
The following is the planned sequence of lecture topics and readings for the course. This schedule may change – keep watch on Blackboard for announcements. All readings are required and should be completed before the start of the lecture for which they are assigned, unless otherwise noted. All readings are available online or from JHU ARES (eReserves) system.

Sept. 6 – Economic rationale for environmental markets

Readings - Complete these before next week’s class

- Introductory videos, about 6 minutes each: “Negative externalities” and “Taxes for Factoring in Negative Externalities” https://www.khanacademy.org/economics-finance-domain/microeconomics/consumer-producer-surplus#externalities-topic

Sept. 13 – Basics of commodity markets

Readings:

- Good Derivatives by R. Sandor. (2012) Chapter 10, pages 205 - 211
- Clean Energy Finance 101 http://blogs.edf.org/energyexchange/2014/06/05/clean-energy-finance-101/

Sept. 20 – Introduction to U.S. Electricity Markets

Readings:
Primer: http://www.vox.com/2016/2/5/10919082/solar-storage-economics
Beyond Utility 2.0 to Energy Democracy (Institute for Local Self-Reliance, 2014) https://ilsr.org/report-energy-democracy/, then download report

Sept. 27 – Renewable Portfolio Standards and Renewable Energy Credits
Small group assignment: Profile a state’s electricity market
Readings:

- http://www.vox.com/2016/1/12/10756028/state-renewable-energy-mandates-benefits [warning: some states have expanded their RPS programs since this piece was written – don’t trust the numbers in the map]

Oct. 4 – Markets for non-CO2 pollutants
In-class quiz, including concepts from today’s assigned reading
Readings:


Oct. 11 – History of carbon markets around the world
Small group assignment: Profile a state’s RPS and how it interacts (if at all) with other environmental markets
Readings:

• Fialka: https://www.eenews.net/stories/1060037009
• “The Inside Story of the Paris Climate Agreement” (Christiane Figueres TED talk) https://www.youtube.com/watch?v=MIA_1xQc7x8
• State & Trends of Carbon Pricing 2017 (World Bank) https://openknowledge.worldbank.org/handle/10986/28510, then download report. Don’t read everything - just skim this. This report provides useful background and data for the programs we’ll be discussing further.

Oct. 18 – Carbon market fundamentals

Readings:

• Ensia: https://ensia.com/features/carbon-pricing-why-isnt-it-working/
• “Cap and Trade Basics” (C2ES) https://www.c2es.org/content/cap-and-trade-basics/

Oct. 25 – The Regional Greenhouse Gas Initiative

In-class quiz, including concepts from today’s assigned reading

Readings:

• Interactive factsheet RGGI: https://icapcarbonaction.com/en/ets-map
• The Economic Impacts of the Regional Greenhouse Gas Initiative on Nine Northeast and Mid-Atlantic States, Chapters 1, 2, and 5 only (Analysis Group, 2018) http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/analysis_group_rggi_report_april_2018.pdf

Nov. 1 – The European Emissions Trading System

Readings:

• Interactive factsheet EUETS: https://icapcarbonaction.com/en/ets-map

Nov. 8 – California’s AB 32 and the Western Climate Initiative

• Interactive factsheet California: https://icapcarbonaction.com/en/ets-map
California: An Emissions Trading Case Study (IETA, 2018)

Optional webinar recording (the Q&A portion is especially option): Understanding California’s Extended Cap-and-Trade Program
https://www.c2es.org/event/understanding-californias-extended-cap-and-trade-program/

Nov. 15 – Introduction to carbon offsets

Readings:
- State of the voluntary carbon markets (Ecosystem Marketplace, 2017)

Nov. 22 – Thanksgiving (no class)

Nov. 29: New Tools to Finance Clean Energy and Climate Action

In-class quiz, including concepts from today’s assigned reading

Readings:
- "The Spread of Green Banking" (EDF blog)
- PACE financing (2-part EDF blog):
  http://blogs.edf.org/californiadream/2014/03/19/pace-financing-for-californias-clean-energy-future-part-1-expanding-the-residential-market/ and
  http://blogs.edf.org/energyexchange/2014/03/21/pace-financing-for-clean-energy-part-2-lowering-the-funding-costs/

Dec. 6 – Other market-based mechanisms to reduce GHG emissions

Individual presentations, part 1

Readings:
- Market-based Instruments for International Aviation and Shipping as a Source of Climate Finance (IMF and World Bank, 2011)

Dec. 13 – Long-term Climate Challenges

Individual presentations, part 2

Readings:

• Two degrees: The history of climate change’s speed limit (Carbon Brief, 2014) https://www.carbonbrief.org/two-degrees-the-history-of-climate-changes-speed-limit