New York City College of Technology
Social Science Department

Department of Social Science
Econ 2505: Environmental Economics
Class Hours: 3, Credits: 3

**CATALOG DESCRIPTION:** This interdisciplinary course examines current environmental issues from a macroeconomic perspective, focusing on both the long and short-term economic viability of various proposals to address current environmental challenges. Traditional goals of economic efficiency will be examined in the context of the need to expand renewable energy sources, green design, sustainable construction and resource allocation and other efforts to combat climate change on a global scale.

**Proposed rationale for course:** To help meet the needs of the proposed new four-year degree program in sustainability studies at City Tech, this course seeks to examine sustainability issues from an economic perspective. As many issues, such as investment in renewable energy sources, ‘green’ building, design, and construction projects and emerging technologies aimed at reducing the carbon footprint are often evaluated in the context of efficiency and economic costs and benefits, this course seeks to examine these concepts from a broader perspective, in which efficient choices are examined in the context of long-term economic and ecological well-being. The course also stands on its own as an important addition to the offerings in the Economics discipline, particularly as issues of sustainable economic practices become more central to thinking about solutions to macroeconomic problems.

**COURSE PREREQUISITE:**
CUNY proficiency in reading and writing and either Econ 1101 or Econ 1401

**RECOMMENDED TEXTBOOK and MATERIALS**


Additional assigned readings from journals, newspaper and magazine articles

**Recommended:**


Websites:
http://www.ted.com/search?cat=ss_all&q=environmental+economics&page=3
www.ted.com/
http://www.ted.com/talks/michael_green_why_we_should_build_wooden_skyscrapers.html?source=email#.Ud77Zwdb0ix.email

**SAMPLE SEQUENCE OF TOPICS AND TIME ALLOCATIONS (number of hours)***

**Week 1:** Overview of Environmental Economics and the current debates about climate change

  Assigned readings: Pearson, *Introduction and Road Map*, pgs. 1 – 8; Ch. 1: *Climate Change: Background Information*, pgs. 9 – 18.

**Week 2:** How do economists view environmental/ecological crises and how to address them? A mainstream vs. a critical view

  o Environmental costs as “externalities” and a reflection of market failure (traditional economic theory)
  o the conflict between more vs. less government regulation of industry practices
  o the view of increased regulation as a constraint on economic growth and progress vs. regulation aimed at protection of vital natural resources and sustainable economic growth.


**Week 3:** The challenges to promoting sustainable economic growth and renewable resources in a consumer driven market/capitalist economy

  o The consumer as central to the survival and thriving of market economies
  o Moving from the ‘disposable’ society to the concept of renewability

**Week 4:** The global economic impact of emerging market economies

- Global demand for food, automobiles and other consumer goods promotes increased world demand for fossil fuels
- Rapid Industrialization and challenges to clean air, water, land.
- Unplanned economic growth and urbanization in rapidly expanding new market economies poses challenges to slowing climate change
- How are emerging economies adapting industry practices to support renewable resources?


**Week 5:** Sustainable land use; renewable agricultural practices and fair labor standards with agricultural trading partners

- Supporting sustainable farming practices and the preservation of vital natural resources in developing and emerging economies; Providing economic incentives for farmers, growers to preserve land as an alternative to turning land over to unsustainable development
- Sustainable and humane practices in food production: raising, processing, etc. of beef, chicken, sustainable aquaculture
- Sustainable tourism
- What are the macroeconomic benefits?

Assigned readings: 1) study – Chapter II: *Understanding the current food system in the context of climate change — major components and drivers*; and 2) Chapter IV: *Essential actions for food security and climate stabilization in Achieving Food Security in the Face of Climate Change*, Commission on Sustainable Agriculture and Climate Change, 2012, [http://ccafs.cgiar.org/commission/reports](http://ccafs.cgiar.org/commission/reports)

**Guest lecturers - Geosciences and Hospitality Management**

**Week 6:** Uneven global economic development and the challenges to developing and encouraging renewable resource and conservation practices

- The limits to unsustainable global economic growth; encouraging renewable growth
Assigned readings: Pearson, ch. 5 Strategic Responses; Daly, ch. 7 Operationalizing Sustainable Development by Investing in Natural Capital.

**Week 7:** Alternatives to the current GDP for measuring economic growth and progress; the need for a “green GDP.”

- Why a “green GDP?”
- A critical look at how economic growth and progress is currently measured in the U.S.
- Measurement proposals in use or under consideration in other advanced and developing nations
- Why does method of measurement of economic progress matter?

Assigned readings: Daly, Ch. 8 Toward a Measure of Sustainable Net National Product, and ch. 9 On Sustainable Development and National Accounts.

**Week 8:** Midterm Exam

**Week 9:** Examples of where investment in renewable energy and economic practices is generating measurable benefits in the U.S. economy

- Examine current examples across markets in the U.S. and in emerging economies
- Commercial, industrial and residential practices
- Wind, solar, and other alternative energy sources – how much have these grown as a share of the energy economy?


**Week 10:** The Growth of Green Building Design, Construction, Engineering and Architecture

- Measuring cost and resource savings from air purification and recycling; water (non-drinking) recycling; energy efficient windows in residential and commercial buildings
- Renewable energy sources: solar, wind.
- Look at case studies; examples
- Examples from emerging and developing economies
- Economic impact of green practices

**Guest Lecturers – Architectural Design; Sustainable Technology**

**Week 11:** How to promote and expand upon sustainable growth practices?

- Should government promote commercial, industrial and residential use of alternative energy sources and renewable building practices and materials use?
- What forms might such incentives take? Tax credits? Direct subsidies? Other methods?
- How would the growth of sustainable economic practices by business, consumers, builders, etc. contribute to the renewal of the U.S. economy?


**Week 12:** Economic and human costs of global climate change

- Loss of farmland
- Droughts/floods/ changes in climate patterns threaten sustainable world food supply
- How do unsustainable farming practices contribute to the loss/degradation of vital natural resources


**Week 13:** Environmental, economic and social justice


**Guest Lecturer - Sociology**

**Week 14:** Fair trade vs. free trade; why do “fair trade” practices promote renewable resources as opposed to free trade?

Assigned reading: 1) Pearson, ch. 7 Trade and Global Warming; 2) Daly, ch.10 Free Trade and Globalization vs. Environment and Community; and ch 11, From Adjustment to Sustainable Development: The Obstacle of Free Trade.
**Week 15: Final Exam**

**COURSE INTENDED LEARNING OUTCOMES/ASSESSMENT METHODS:** To develop an understanding of the fundamental concepts of environmental economics. Specifically, course objectives include the following:

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<th>LEARNING OUTCOMES</th>
<th>ASSESSMENT METHODS</th>
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<td>1. Students in the course should be able to demonstrate an understanding of many dimensions of sustainability as they relate to the potential for renewed economic growth.</td>
<td>1. The midterm and final exams, which will include essay questions, will test students’ understanding of sustainability issues as they relate to economic practices and policy.</td>
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<td>2. Demonstrate a knowledge of the importance of changing economic behavior – from consumers, to business practices to government – to build upon the move toward sustainable economic practices.</td>
<td>2. Class discussions of assigned articles and other supplementary readings.</td>
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<td>3. Identify a range of tools from environmental economics that can be applied to solving real world environmental challenges that impact the U.S. economy.</td>
<td>3. Both the quizzes, exams and class discussions will serve as tools to encourage students to make the connections between environmental goals and addressing economy-wide and global economic issues.</td>
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<td>4. Develop a breadth and depth of knowledge of how to begin to apply the concepts of sustainability to consumer, business and trade practices.</td>
<td>4. Through the written research project and/or case study, students will focus on a problem/issue, the challenges posed by that issue and critically examine various solutions.</td>
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**GENERAL EDUCATION LEARNING OUTCOMES/ASSESSMENT METHODS**

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<td>1. KNOWLEDGE: To develop an understanding of the key concepts that relate to environmental economics, the central topics and theories of how to address environmental problems through economic policy.</td>
<td>1. Quizzes that both test an understanding of basic concepts and that require students to express their understanding in writing (short essay quizzes).</td>
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<td>2. SKILLS: Develop and apply the tools of environmental economics to be able to critically question, analyze, and discuss environmental economic problems and issues; Develop and strengthen the ability to discuss concepts and thoughts in writing.</td>
<td>2. Completion of essay questions on exams; class discussions of questions tied to topics covered in class and to supplemental short readings and articles on timely relevant issues; students analyze, evaluate and consider policy options.</td>
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<td>3. INTEGRATION: Apply the tools acquired in the course to be able to build upon an understanding of environmental issues and sustainability across disciplines, both in the social sciences and other disciplines.</td>
<td>3. Research project which requires students to select and define a topic, problem or issue and examine possible solutions drawing upon and employing the tools of related disciplines.</td>
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<td>4. VALUES, ETHICS, AND RELATIONSHIPS: Develop an understanding of and ability to apply diverse perspectives to the understanding of sustainability/environmental economics; work creatively with others in group problem solving; develop a</td>
<td>4. Weekly in-class group assignments; assignments encourage student discussion and sharing of ideas and perspectives; focused discussions that encourage students</td>
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respect for diverse viewpoints and apply the skills and concepts covered in the course to the analysis of related issues and concepts across other disciplines
to question and think critically to develop their own perspectives on issues covered in the class.

From: Important General Education Learning Goals (6/1/11) DRAFT

SCOPE OF ASSIGNMENTS and other course requirements*

Students in this course will be required to complete a written research project resulting in a final paper of approximately 5 pages. This may consist of a topic chosen from topics covered in the course or a case study tied to a particular topic in the student’s major course of study. There will also be a midterm and final exam, both of which will place an emphasis on a written understanding of key concepts covered in the course and readings; Two quizzes consisting of a choice of one or two essay questions; class discussions of assigned readings – students will be expected to be prepared to discuss assigned questions based on the readings. The course will be writing intensive.

METHOD OF GRADING – elements and weight of factors determining the students’ grade*

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<tr>
<th>Assignment</th>
<th>Weight</th>
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<tr>
<td>Midterm exam</td>
<td>25%</td>
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<tr>
<td>Community based research project/case study</td>
<td>30%</td>
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<tr>
<td>Final exam</td>
<td>25 %</td>
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<td>Group presentation of research findings</td>
<td>10 %</td>
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<td>In-class assignments, discussion, blog posts; class participation; attendance</td>
<td>15%</td>
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*Scope of Assignments and Method of Grading to be determined at discretion of the instructor.

ACADEMIC INTEGRITY POLICY STATEMENT

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.

COLLEGE POLICY ON ABSENCE/LATENESS

A student may be absent without penalty for 10% of the number of scheduled class meetings during the semester as follows:

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<tr>
<th>Class Meets</th>
<th>Allowable Absence**</th>
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<tr>
<td>1 time/week</td>
<td>2 classes</td>
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<tr>
<td>2 times/week</td>
<td>3 classes</td>
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<td>3 times/week</td>
<td>4 classes</td>
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**Course Perspective**

Neoclassical/traditional economic theory and analyses examine the problem of externalities – the negative effects or byproducts of producing - (such as pollution) largely within the context of “market failure,” the failure or shortcomings of the market system to efficiently address problems of pollution or overuse of resources on its own without government intervention. Government regulation of industry is viewed as the principal source of addressing and/or correcting such market failures, whether by enforcing a set of required laws and policies to protect air, water and land quality and/or imposing a combination of fines or even stiffer penalties for not taking the required precautions to prevent an event from occurring or for not taking the necessary safety precautions to prevent environmental damage.

This mainstream approach views the issue of the environmental impact of economic decisions largely from a microeconomic perspective – one which sees the choices that individual firms make as imposing certain economic costs on the society/economy.

On the macroeconomic level, the nation’s Gross Domestic Product measures the final market value of all goods and services produced within a given period of time, such as a quarter or a year. Included in the measure of GDP is all economic activity which generates income, output and expenditure. Thus, in addition to the market value of producing such vital goods and services as automobiles, wheat, houses, legal services and accounting services, GDP counts the expenditure and income generated through the process of cleaning up after the effects of environmental disasters such as superfund sites, oil spills, rescuing and restoring affected wildlife and other attempts to correct an “externality.”

In sum, no distinction is made in GDP measurement between the social “goods,” – the benefits to the economy of producing goods and services and the social “bads,” – the costs of cleaning up and/or restoring resources following an environmental accident or disaster.

The proposed course in Environmental Economics examines the issue of sustainable economic growth and development, the growing threats to vital resources and the measurement of economic growth and development employing a broader vision and a more critical analysis of the impact of environmental degradation on the economic health of society. It also approaches the study of environmental economics from an international perspective, examining the challenges to sustainable economic growth and renewable resource practices posed by the vast differences in the stages of economic development from agricultural to industrial and from industrial to service based economies; the challenges to long standing production and other resource use practices posed by the emerging field of renewable energy;

**Bibliography: Environmental Economics**


David Pearce, and Edward Barbier. *Blueprint for a Sustainable Economy*, Earthscan Publications, 2000


