Location/Time:
Mondays, 7:40-9:40 pm, Online
This course is taught via live web conference using Blackboard Collaborate.
(Access link to be provided prior to class start)

Professor & Teaching Fellows:
Jennifer J. Clifford Ph.D. (781) 729-2273, jennifer.clifford@umb.edu
Carlos A. Vargas MBA, ALM carlos.vargas@live.com.mx
Veena Dharmaraj morethanwords@gmail.com

Required Text:
*Environmental & Natural Resource Economics*
By Jonathan M. Harris
Houghton Mifflin
3rd edition 2014

Recommended Reading:
*Sustainable Entrepreneurship: Business Success through Sustainability*
Weidinger, Fischler, & Schmidpeter
Springer 2014

*In the River They Swim*
By Michael Fairbanks
Templeton Press 2009

*Ecological Economics: Principles & Applications*
2nd edition
By Herman E. Daly & Joshua Farley
Island Press 2010

*Plan B 4.0: Mobilizing to Save Civilization*
By Lester R. Brown
W.W. Norton & Company 2009
Earth Policy Institute
Available on-line at www.earthpolicy.org/index.php?/books/pb4

*World on the Edge*
By Lester R. Brown
W.W. Norton & Company 2011
Earth Policy Institute
*The Bridge at the Edge of the World*
By James Gustave Speth
Yale University Press 2008
New Haven & London

*Deep Economy*
By Bill McKibben
Times Books 2007

All required articles and case studies will be posted online. An additional recommended reading list will be posted as well.

This is a paperless course. All students will be required to submit their assignments via the course website. Please plan appropriately. After the second week students will be required to use their student HUID (or XID) and password to access the site.

**Course website:**
[http://canvas.harvard.edu/](http://canvas.harvard.edu/)

**Course Description:**
The class is designed as a broad survey course covering the most critical topics in environmental economics today. Economics, the science of how scarce resources are allocated, is at the core of many of our most challenging environmental issues, and therefore vitally important. In a world of increasing scarcity and competing demands, economic analysis can guide public policy to efficient utilization of resources. Market failures are the cause of many of our most serious environmental problems, but can be remedied with economic tools. Getting prices to reflect true costs, providing productive incentive structures, and explicitly valuing environmental amenities are the primary goals.

Topics covered include the economics of population growth, poverty & income distribution, market failures, economic valuation, economic incentive instruments, food and water resources, international agricultural markets, fisheries, and wildlife conservation.

Weekly case studies will supplement reading assignments and facilitate discussions centered on the current issues. Through this course students will gain a working knowledge and solid understanding of the environmental issues and the economic incentive instruments and valuation methodologies that can be employed to protect, improve or conserve the environment.

Case studies & due dates will be posted on the class website.

**Course Outline:**
*All case studies will be posted by week (via website). Cases and readings are due for class by the date listed.*
Grade Breakdown:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Case Studies</td>
<td>20%</td>
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<tr>
<td>Class Participation</td>
<td>10%</td>
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<tr>
<td>Midterm Exam</td>
<td>25%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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<tr>
<td>Editorial</td>
<td>15%</td>
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Course Schedule:

**Week 1: 8/31/2015**

**Course Overview and Introduction:**
- Primer on Economic Principles, Website Tour
- Introduction to Environmental Economics

**Readings:**
- Harris & Roach: Chapters 1 & 2

**Labor day (No Class) 9/7/2015**

**Week 2: 9/14/2015**

**Market Failures:**

**Externalities, Public Goods, Common Property, & Collective Action**

Normally, market forces (supply & demand) will drive the economy to an efficient level of output. However, different circumstances cause market failure: whenever externalities are present the free market will produce too few positive externalities & too many negative externalities, when a resource is common property it is overexploited, the free market fails to provide most public goods, and when special interests form a coalition and engage in collective action they secure a disproportionate share of benefits to the detriment of society at large.

**Readings:**
- Harris & Roach: Chapters 3 & 4
- "The Tragedy of the Commons" by Garrett Hardin available online
- “The Problem of Market Failure” by Alan Randall
- “On Divergences between Social Cost & Private Cost” by Ralph Turvey
- “In California a Step Toward BYOB” NY Times 6/2/10
- “Obama’s Climate Challenge” by Jeff Goodell rollingstone.com January 31, 2013

**Case Studies:**
- Motivated by Tax, Irish Spurn Plastic Bags
- No Drill, Baby, Drill
- Paid to Leave Trees Standing
- Ranchers & Drug Barons and Amazon rainforests pay the price as demand for beef soars

SYLLABUS IS SUBJECT TO CHANGE, PLEASE CHECK COURSE WEBSITE REGULARLY FOR UPDATES
**Week 3: 9/21/2015**

**The Economics of Population Growth & Poverty Measures**

We will study effective population policies, the impacts of population and cover different measures of poverty including the Kuznets Ratio, the Lorenz Curve, the Gini Coefficient, the Total Poverty Gap (TPG) and the World Bank’s threshold for Absolute Poverty. In addition we will analyze economic theories concerning poverty, income distribution, and purchasing power.

Readings:

- Harris & Roach: Chapter 9
- Leathers & Foster, chapter 7 (optional)
- Goodland, Robert, “The Case that the World Has Reached Limits”

Case studies:

TBA

- Read only:
- New Limits to Growth Revive Malthusian Fears
- Acceleration of Fertility Decline in LDCs
- Water Dispute Increases India- Pakistan Tension

Optional reading:


**Week 4: 9/28/2015**

**Economic Valuation of Environmental Amenities & Methodologies & Benefit-Cost Analysis**

We will survey the non-market valuation methodologies employed by economists to measure public goods. These include Contingent Valuation Method (CVM), Hedonic Pricing, and the Travel Cost Method (TCM). Focus will be on CVM as it is recognized by the U.S. Department of the Interior (DOI) and the National Oceanic and Atmospheric Administration (NOAA) as the best available method.

Readings:

- Harris & Roach: Chapter 6
- “BP Oil Disaster Threatens Mississippi Delta Goods & Services Worth Far More than BP’s Value” Environmental Defense Fund June 10, 2010
Case Studies:
- How much is Clean Water Worth?
- Nature’s sting: The real cost of damaging Planet Earth
- The million dollar pond

**Week 5: 10/05/2015**

**Guest Speaker: Senator Mark Pacheco**
Chair, Joint Committee on Environment, Natural Resources and Agriculture  
Chair, Senate Committee on Global Warming and Climate Change  
Vice Chair, Joint Committee on Public Health  
Massachusetts Senate  
[https://maslegislature.gov/people/profile/mrp](https://maslegislature.gov/people/profile/mrp)

**Columbus day (No Class) 10/12/2015**

**Week 6: 10/19/2015**

**Economic Incentive Instruments & Carbon Offsets**
**National Income and Environmental Accounting**

We will study a variety of economic instruments which can be used to incent or motivate both individuals and industries to do what is in the interest of society at large – to protect rather than degrade the environment, the science of putting proper incentives in place and removing perverse incentives.

Readings:
- Harris & Roach: Chapter 8
- “Reducing Emissions from Deforestation and Forest Degradation in Developing Countries” Environmental Defense Fund
- “The Market is Lying: Why We Must Tax Carbon, Not Subsidize it” July 8, 2011

**Case Studies:**
- Coal Fired Power on the Way Out
- Carbon Tax or Emissions Cap?
- In China A Plan to Turn Rice Credits into Carbon Credits
- 40 million Acres of Rainforest to the Greenest Bidder

**Week 7: 10/26/2015**

**Guest Lecture: David Tomey**  
Environmental Law / The Boston Harbor

**Week 8: 11/02/2015**

Midterm Exam
Week 9: 11/09/2015  
Guest Speaker: Brian Hillmer  
Sustainable Fisheries

Week 10: 11/16/2015  
Global Food Supplies, Food Security, Hunger & Malnutrition  
We will analyze the global food markets including the demand and supply side factors and policies impacting world market prices. Food security is defined as access to enough food by all people for an active and healthy life. We will study nations with and without food security, analyze the causes of food insecurity and the potential policy solutions with a focus on what is needed to close the food gap.

Readings:
- Harris & Roach: Chapter 10  
- Grunwald, Michael, “The Clean Energy Scam” Time magazine 4/7/08 on line: http://www.time.com/time/magazine/article/0,9171,1725975,00.html  
- “Livestock’s Long Shadow” UNFAO 2006 on line: http://www.fao.org/docrep/010/a0701e/a0701e00.HTM  
- “Farmer in Chief” by Michael Pollan –NYT 10/12/08 on line: http://www.nytimes.com/2008/10/12/magazine/12policy-t.html  
- Lerrick, Adam, “When the Price of Bad Policy is Hunger” AEI 7/8/08

Additional recommended reading (optional):
- The World Food Problem 3rd edition by Howard Leathers & Phillips Foster  
- Brown, Lester, Deteriorating Oil & Food Security,” in Plan B 3.0 Norton 2008  
- Bell, Beverly, “Groups around the US Joined Haitian Farmers in Protesting ‘Donation’ of Monsanto Seeds” June 7, 2010

Case Studies:
- How Will the World Feed itself in 40 Years Time?  
- Lessons Learned from Past Food Crises  
- Food, Famine, and Climate Change  
- Global Land Grab Undermines Food Security

Week 11: 11/23/2015  
Guest Speaker: Joseph M. Hunt  
Health and Environment
Week 12: 11/30/2015  
Guest Lecture: Carlos Vargas

Week 13: 12/7/2015  
Renewable & Depletable Resources  
Water Resources & Water Pollution  
Editorials due

Worldwide, over a billion people lack access to a safe drinking water supply. Water is over-consumed, wasted & polluted because it is improperly priced and, or, subsidized. We will study the issues surrounding water availability, pollution and economic solutions.

Readings:
- Harris & Roach: Chapter 5 & 15
- “Water Scarcity: A Looming Crisis?” by Alex Kirby BBC News 10/19/04
- Pala, Christopher, “Our Imperiled Oceans: Victory at Sea” Smithsonian magazine Sept. 2008
- “The Hidden Freshwater Crisis” World Watch Institute 12/9/08
- Block, Ben, “Water Footprints Make a Splash” World Watch Institute 8/21/08
- “Water, Water, Everywhere…” WSJ 1/17/08
- Clark, Edwin, “Water Prices Rising Worldwide” Earth Policy Institute 3/7/07
- “Conserve Water through Food Efficiency” World Watch 5/23/08
- Lall, Heikkila, Brown & Siegfried “Global Crises and Potential Solutions,” Journal of International Affairs Spring/Summer 2008 Vol. 61 No. 2
- “Egypt & Thirst Neighbors at Odds over the Nile” WSJ 9/26/10  
  [Link]

Case studies:
- Clean Water Laws Are Neglected, at a Cost in Suffering
- Water for Sale
- Why Investments in Farmland are Now Like Gold
- Chinese Dam Project Criticized for their Human Costs

Optional Additional Reading:
Common Property Resources: Fisheries, Renewable Resources: Forests
- Harris & Roach: Chapter 14
- Montaigne, Fen “Still Waters: The Global Fish Crisis” National Geographic April 2007  
  [Link]
- Pala, Christopher, “Our Imperiled Oceans: Victory at Sea” Smithsonian magazine Sept. 2008  
  [Link]
- Fallows, James, “China’s Silver Lining” The Atlantic June 2008  
  [Link]
  [Link]
• Mann, Charles, “Our Good Earth” National Geographic Sept. 2008
  http://ngm.nationalgeographic.com/2008/09/soil/mann-text
• McKibben, Bill, “Carbon’s New Math” National Geographic Oct. 2007
• “Saving All the Parts” in Saving All the Parts: Reconciling Economics and the Endangered Species
  Act by Rocky Barker

Week 14: 12/14/2015
Editorial presentations & discussion
Final Exam Topic Review

Week 15: 12/21/2015
Final Exam