Harvard University Distance Education Program

Environmental Management II Course Introduction

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Environmental Management 2
Course Introduction

John Spengler  Zachary Zevitas

Now on the Web

Take this Course Online!
Distance Learning Program
Spring Term 2006

Certificate in Environmental Management

http://www.extension.harvard.edu/cem/

Masters in Environmental Management

http://www.extension.harvard.edu/envr/

EM2 Web Site

Click Here for EM2

http://courses.dce.harvard.edu/~environment/em2

Video with Synchronized Slides
Hybrid Course Model

- Students attending class lectures in person
- Distance & Campus Students attending via the Internet
  - Streaming video, slides, & web resources
- Nodal Classes via the Internet
  All lectures, assignments, handouts, and review materials are available online to all students
  24 hrs/day, 7 days/week.

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Peter D. Zevitas
Undergraduate Distance Education Students & Web Technical Support for All Students

Follow the HELP link on the course website for FAQs on setting up your computer for Distance Education
email: pzevitas@fas.harvard.edu

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DCE Computer Center

The Division of Continuing Education proudly welcomes you to the 53A Church Street Computer Facility. The Facility is accessible to students enrolled in Harvard Extension School computer related classes, degree candidates and all Summer School students. 53A Church Street is a cross platform facility with high-end Macintosh and Windows/NT computers. Flatbed scanners, CD burner, digital cameras and laser printing are available for student use free of charge.

Short Papers

Undergraduate Students
Submit two (2) short papers 4-6 pages -10% of grade each

Paper #1 - Due March 22nd
Home Energy Audit
Site Description
Mechanical Systems Description
- Heating/Cooling/H2O Heater
Analysis of Site
- current deficiencies, efficiencies
Recommendations
Environmental and Economic Impacts of
Recommendations

Paper #2 - Due May 3rd
Write about a class / independent field trip
or a seminar / lecture / event you attended.

Graduate Students
Submit one (1) short paper 4-6 pages -10% of grade

Paper #1 - Due March 22nd
Home Energy Audit
Site Description
Mechanical Systems Description
- Heating/Cooling/H2O Heater
Analysis of Site
- current deficiencies, efficiencies
Recommendations
Environmental and Economic Impacts of
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Paper #2 - Due May 3rd
Write about a class / independent field trip
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Weekly Feedback

- Briefly Summarize a Key Topic from Weekly Lecture
- Comments & Suggestions
- Write (1) Multiple Choice Question
- Due by Next Class – 10% of Grade

Undergraduate Course Requirements

COURSE REQUIREMENTS FOR UNDERGRADUATE STUDENTS:

1. Read at least 8 of the essays in this book (see instructor’s notes attached).
2. Midterm Examinations (50% of grade): March 22nd and April 26th, 23% of grade each.
4. Short Paper 1: US: (30% of grade): Due March 22nd
5. Short Paper 2: US: (50% of grade): Due April 26th
7. Weekly Feedback: (25% of grade): Due May 16th.

Total: 100%

Grading - Undergraduate Students

- Midterm Exam 35%
- Final Exam 35%
- Paper # 1 10%
- Paper # 2 10%
- Weekly Feedback 10%
- Total 100%

Grading - Graduate Students

Graduate Project Report: 15-20 pages (per student) in length, on an approved topic that typically involves sampling and/or surveys. Up to three students may form a project team (individual contributions must be clearly defined). Each project team shall summarize their work in a short oral presentation to the class on 10 or 17 May 2006.

Grades:

- Midterm Exam 25%
- Final Examination 25%
- Short Paper 10%
- Graduate Project 30%
- Total 100%
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Graduate Student Work

Graduate Web Projects

Distance Learning Students

- Related project in your area
- Partner with local students @ Harvard
- Send email to TA this week identifying yourself as a distant learner & verifying your email address:
  bblancha@hsph.harvard.edu

Ask-the-TA

Course Textbook

Environmental Science
-- Earth as a Living Planet
4th Edition

Daniel B. Botkin & Edward A. Keller

Pub. John Wiley & Sons, Inc. NY available at the Harvard Coop

Lecture Slides Handout

Produced by Science Network (Boston) 1-800-SCIENCE
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www.ScienceNetwork.com
Emission Reduction Benefits far Exceed Costs

Where is the Oil?

- Oil & Gas Reserves < 40 years

- Cost-Benefit

  - Acid Rain
  - CAA Implementation
  - All Other Regulatory Programs


- Oil Refinery Process

- Oil Refinery Process

- Peak Oil

- Oil and Gas Liquids 2004 Scenario

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The Best Way to Predict the Future is to Create it'

www.ScienceNetwork.com
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Lecture Slides Handout
World-Wide Resources of Coal
US Coal > 200 year supply

Climate Change

Mountain Top Mining

Coal Gasification = Electricity & Mobile Fuels
50% efficient vs. 20% for Conventional Coal-Fired Power Plant

Non-Renewable Energy Part 2
Zachary Zevitas
Instructor of Environmental Management
Harvard University Extension School

How long will fossil fuels last?

As each fuel source is depleted, what will be the effect on the rate of use of the remaining energy sources?
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New Electric Plants
U.S. Electric Generation Capacity Additions

Pressure Water
Nuclear Reactor

Alternative Energy

Zachary D. Zevitas
Instructor of Environmental Management
Harvard University Extension School
Energy Alternatives

Zachary D. Zevitas & Barbara Blanchard
Harvard University Extension School

Get ready

Solar
Wind
Hydro

for a low energy world

www.oilcrisis.com

E=mc²
The Universe is made of energy

We do not face an energy crisis
We face a crisis of imagination

Hazardous Chemicals

✓ 70,000 on the US market
✓ 1,000 new added per year
✓ Many beneficial, but 35,000 are potential or confirmed health hazards

Carpooling

One person per SUV is the rule!
**Brownfields Definition**
- Abandoned, idled, or under-used industrial and commercial facilities
  - Expansion or redevelopment is complicated by real or perceived environmental contamination
- Amenable to lightly contaminated sites

**Field Activities**
- Excavation, backfill, dewatering, restoration

**Progress**
- Ground water plume
  - Reduced

**Solid Waste Management**
- Zachary D. Zevitas
  - Instructor of Environmental Management
  - Harvard University Extension School

**INDOOR AIR QUALITY**
Part One
- John D. Spengler, Ph.D.
  - Akira Yamaguchi Professor of Health & Human Habitation
  - Harvard School of Public Health
How IAQ Problems Present

Dirty Ducts

INDOOR AIR QUALITY

Part Two

John D. Spengler, Ph.D.

Akira Yamaguchi Professor of Health & Human Habitation
Harvard School of Public Health

Carcinogenic Risk Assessment of Volatile Organic Compounds and Metals of Teenagers in New York City and Los Angeles

Personal Indoors Outdoors

The Built Environment

Green Buildings

The Best Way to Predict the Future is to Create it’

Transportation 2006

Christopher D. Zevitas
Environmental Engineer
U.S. Department of Transportation
Environmental Management II - ENVR E-102

Lecture Slides Handout