

# ENST 233 - Introduction to Environmental Health – Fall 2011

Instructor: Dr. Lance Yonkos  
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Office hours: Tu/Th 1:30 pm – 3:30 pm (and by appointment)

Teaching Assistants: Sections 0101 & 0102: Zach Freed [[zfreed@umd.edu](mailto:zfreed@umd.edu)]

Class Lecture: Tu/Th 11:00 am – 12:15 pm  
0408 Animal Science (Bldg. 142)

Class Discussion: Section 0101 - Wed 2:00 – 2:50; Section 0102 – Wed 3:00 – 3:50  
0422 Animal Science (Bldg. 142)

Prerequisites: none  
Credits: 3

## **Course Description**

The course will examine how humans are affected by the quality of our air, water, soil and food supply as well as how human activities alter these survival necessities. Students will learn how the evolution and prosperity of human populations have resulted in degradation of our environment and the impact of environmental degradation on the health of people. The implications of individual and collective choices for sustainable food production, population management and resource utilization will be explored.

## **Text**

Living with the Earth: Concepts in Environmental Health Sciences, Third Edition. Gary S. Moore. CRC Press LLC. 2007.

## **Format**

The course includes a *Lecture* component comprised of twice weekly (Tu/Th) lectures and occasional invited speakers and a weekly *Discussion* component providing students the opportunity to explore topics in greater depth and participate in student group presentations. Attendance for group presentations and invited speakers is mandatory, except by prior arrangement, and will be reflected in class participation grades.

## **Grading**

### *Lecture*

Class Participation	.....	5%
Exam 1	.....	15%
Exam 2	.....	20%
Final Exam (comprehensive)	.....	25%

### *Discussion*

Student Presentation (group grade)	.....	10%
Presentation topic paper (group grade)	.....	10%
Peer Evaluation (individual grade)	.....	10%
Presentation evaluations	.....	5%

<i>Total</i>	.....	100%
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## **Student Group Presentations and Papers**

Groups of approximately 4 students will select from a short list of current environmental health related topics and prepare an oral/multimedia presentation. Groups will give a 20 minute presentation and lead subsequent class discussion. All members of presenting groups will participate equally in the actual presentation.

**Presentation Group Grade:** Group presentations will be graded based on the five elements described below. Each element will account for 20% of the overall grade for the group presentation. A single presentation grade will apply to all members of the group.

Subject	Did the presentation raise an appropriate environmental health question and then adequately address that question in a sound, balanced and comprehensive manner?
Organization	Was the presentation well planned and organized, and was the time used appropriately in addressing essential elements?
Delivery	Were the speakers' deliveries clear, understandable, engaging, and free from distracting mannerisms?
Visual Aids	Were the visual components clear, easy to read and understand, attractive, free of clutter, and <u>appropriate</u> in content and number?
Effectiveness	Was this an effective learning event? Was the "take home message" clearly conveyed to the audience? <b>Were the implications of "non-action" in regard to topic indicated and were suggestions for sustainable reconciliation of the problem presented?</b>

**Topic Paper:** Groups will also prepare a research paper on their presentation topic. Papers should be 16 to 20 pages in length, double-spaced, typed and written in third person. They should include a title page and references (cited with the format and style from the journal ECOLOGY). All group members are expected to contribute equally in researching and preparing the paper.

**Peer Evaluation:** After oral presentations and paper submissions, students within groups will grade other group members as to their level of help in preparation of the presentation and paper. These grades are confidential and will only be seen by the professor and Teaching Assistant. Remember, poor peer evaluations can cost an entire letter grade so all group members would be wise to do their share.

**Discussion / Evaluation:** Students not presenting are expected to attend presentations and participate in subsequent discussions. They are also expected to complete written evaluations of group presentations by the end of the class period. Evaluations will score the elements of the presentation (detailed above) and provide comments to receive full credit.

Presentations, topic papers, participation in discussions and evaluations comprise 35% of final grades.

## **Final Grades**

Final course grades will be assigned according to the grading scale as shown below:

A	90 and above
B	80-89
C	70-79
D	60-69
F	59 and below

A final numerical grade will be determined. You will receive, at a minimum, the letter grade assigned to the numerical grade as shown above. In the event that the instructor deems it necessary to adjust the scale, you may receive a higher letter grade; in no instance will you receive a lower letter grade.

## **Class Policies**

- Missed classes: With prior arrangements, the instructor may elect to provide notes to students who cannot attend for acceptable reasons. Otherwise, students are responsible for obtaining class notes and assignments.
- Missed exams: Only in cases deemed acceptable by the instructor, will missed exams be offered again as make-up. Missing an exam without a University Accepted excuse will result in a grade of zero on that exam.
- Academic Honesty: All students must adhere to the UM student honor pledge:  
[www.jpo.umd.edu/aca/honorpledge.html](http://www.jpo.umd.edu/aca/honorpledge.html)
- Assignments: Papers on presentation topics are to be handed in at the beginning of class on the day of the presentation. Late submissions will be graded down.
- Course evaluation: All students will complete the on-line course evaluation at the conclusion of the semester. Participation in the evaluation of courses through CourseEvalUM is a responsibility you hold as a student member of our academic community. Your feedback is confidential and important to the improvement of teaching and learning at the University. CourseEvalUM will be open for you to complete your evaluations for fall semester courses between Tuesday, November 30th and Sunday, December 12th. Go directly to the [www.courseevalum.umd.edu](http://www.courseevalum.umd.edu) to complete your evaluations starting November 30. By completing all of your evaluations each semester, you will have the privilege of accessing the summary reports for thousands of courses online at Testudo.
- Religious Observance: Please inform the instructor of any religious observances that will preclude you from attending a lecture or exam.
- Counseling: If you feel that you may have a learning disability, you should contact the campus Counseling Center:  
Susquehanna Hall  
301.314.7651  
<http://www.counseling.umd.edu/>

**SYLLABUS: LECTURE**

**ENST 233**

**FALL 2011**

<b>Date</b>	<b>Topic</b>	<b>Reading Assignment</b>	<b>Activities / Discussion Topics</b>
Sept 01	<i>Class Introduction The Big Picture</i>		<ul style="list-style-type: none"> <li>• Review syllabus</li> <li>• What is environmental health?</li> <li>• Basic requirements for human health and well-being</li> <li>• Ecosystem Services</li> <li>• <b>Defining Sustainability</b></li> </ul>
Sept 06	<i>Ecosystem Fundamentals</i>	<ul style="list-style-type: none"> <li>• Moore; Chapter 1: pg 1 -30</li> </ul>	<ul style="list-style-type: none"> <li>• Earth: the atmosphere, lithosphere and biosphere</li> <li>• Biomes and ecosystems</li> <li>• Ecosystem changes: succession vs. retrogression</li> <li>• Cycles of life: energy flow &amp; nutrient cycling</li> </ul>
Sept 08	<i>Human Populations</i>	<ul style="list-style-type: none"> <li>• Moore; Chapter 2: pg 33-75</li> </ul>	<ul style="list-style-type: none"> <li>• Relationships between humans and their environment</li> <li>• Global population demographics in developed vs. developing nations</li> <li>• <b>Population control measures: coercion vs. empowerment</b></li> </ul>
Sept 13	<i>Environmental Degradation &amp; Food Security</i>	<ul style="list-style-type: none"> <li>• Moore; Chapter 3: pg 79-127</li> </ul>	<ul style="list-style-type: none"> <li>• Consequences of deforestation, soil degradation, desertification and wetland loss</li> <li>• The <i>Green Revolution</i></li> <li>• Global food supply and distribution</li> <li>• <b>The future ~ how can we feed the world?</b></li> </ul>
Sept 15	<i>History of Public Health</i>	<ul style="list-style-type: none"> <li>• Supplemental reading: <a href="#"><i>History of Public Health</i></a></li> </ul>	<ul style="list-style-type: none"> <li>• Public health in the Ancient World</li> <li>• Declines during the Middle Ages</li> <li>• Age of Discovery</li> <li>• Public Health in the U.S.</li> <li>• Epidemiology</li> </ul>
Sept 20	<i>Environmental Disease</i>	<ul style="list-style-type: none"> <li>• Moore; Chapter 4: pg 133-169</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental disease agents</li> <li>• Infectious disease transmission</li> <li>• Genetic diseases</li> <li>• Developmental diseases</li> </ul>
Sept 22	<i>Environmental Disease (cont) &amp; The Immune System</i>	<ul style="list-style-type: none"> <li>• Moore; Chapter 4: pg 133-169</li> <li>• Supplemental reading: <a href="#"><i>An Interpretative Introduction to the Immune System</i></a></li> </ul>	<ul style="list-style-type: none"> <li>• Immune System</li> </ul>
Sept 27	<i>Wrap-up &amp; Exam Review</i>		
<b>Sept 29</b>	<b>EXAM 1</b>		

<b>Date</b>	<b>Topic</b>	<b>Reading Assignment</b>	<b>Activities / Discussion Topics</b>
Oct 04	<i>The Trouble with Pests</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 6: pg 221 – 256</li> </ul>	<ul style="list-style-type: none"> <li>Animal vectors of disease &amp; discomfort</li> <li>Agricultural and property damage</li> <li><u>Case Study</u>: Malaria vs. DDT</li> </ul>
Oct 06	<i>The Trouble with Pests (cont.) &amp; Emerging Diseases</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 6: pg 221 – 256</li> <li>Moore; Chapter 7: pg 261 – 307</li> </ul>	<ul style="list-style-type: none"> <li>Invasion Biology</li> <li>Pest control and prevention</li> <li>Reasons for emergence of diseases</li> <li>Diseases in developed countries vs. LDCs</li> </ul>
Oct 11	<i>Emerging Diseases (cont.)</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 7: pg 261 – 307</li> </ul>	<ul style="list-style-type: none"> <li>Antibiotic resistance</li> <li>Major infectious diseases</li> </ul>
Oct 13	<i>Toxicity and Toxins</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 5: pg 175 – 197</li> <li>Supplemental reading: <a href="#"><i>Toxicological Concepts</i></a></li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Terminology</li> <li>Routes of exposure</li> <li>Mechanisms of action</li> <li>Toxicological concepts</li> </ul>
Oct 18	<i>Toxicity and Toxins (cont.)</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 5: pg 197 – 216</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Toxicity testing</li> <li>Cases Studies: Sources and effects on humans of various toxic substances</li> </ul>
Oct 20	<i>Foodborne Illness</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 8: 317 – 359</li> </ul>	<ul style="list-style-type: none"> <li>Biological hazards: parasites and pathogens</li> <li>Chemical hazards: natural and anthropogenic</li> <li>Preserving food</li> </ul>
Oct 25	<i>Guest Speaker: Case Studies in Food Safety and Security</i>	<ul style="list-style-type: none"> <li>Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li><u>Guest Speaker</u>: Robert Buchanan, UMCP Center for Food Safety &amp; Security Systems</li> </ul>
Oct 27	<i>Water and Wastewater</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 9: pg 363 – 396</li> </ul>	<ul style="list-style-type: none"> <li>Hydrologic cycle</li> <li>Water sources and use</li> <li>Water Stress</li> </ul>
Nov 01	<i>Water and Wastewater (cont) &amp; Exam Review</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 9: pg 363 – 396</li> </ul>	<ul style="list-style-type: none"> <li>Water pollution</li> <li>Wastewater treatment</li> <li>Exam Review</li> </ul>
<b>Nov 03</b>	<b>Exam 2</b>		

<b>Date</b>	<b>Topic</b>	<b>Reading Assignment</b>	<b>Activities / Discussion Topics</b>
Nov 08	<i>Air Pollution</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 10: pg 401 – 458</li> </ul>	<ul style="list-style-type: none"> <li>Criteria pollutants</li> <li>Health effects</li> <li>Acid rain</li> <li>Good ozone and bad ozone</li> </ul>
Nov 10	<i>Air Pollution (cont)</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 10: pg 401 – 458</li> </ul>	<ul style="list-style-type: none"> <li>Criteria pollutants</li> <li>Health effects</li> <li>Acid rain</li> <li>Good ozone and bad ozone</li> <li>Smog – old and new</li> <li>The Clean Air Act (CAA)</li> </ul>
Nov 15	<i>Guest Speaker:</i> How sustainability and climate change affect students' studies and future career prospects	<ul style="list-style-type: none"> <li>Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li><u>Guest Speaker:</u> Student Sustainability Advisor from the UMD Office of Sustainability</li> </ul>
Nov 17	<i>Guest Speaker:</i> <i>Renewable energy</i> Dave Tilley / Stephanie Lansing / Ed Landa/ etc	<ul style="list-style-type: none"> <li>Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li><u>Guest Speaker:</u> TBD</li> </ul>
Nov 22	<i>Energy</i>	<ul style="list-style-type: none"> <li>Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li>Traditional fuels</li> <li>Energy trends</li> <li>Ecological cost of energy production</li> <li>Renewable vs. non-renewable</li> </ul>
Nov 24	<b>THANKSGIVING</b>	<b>NO CLASS</b>	
Nov 29	<i>Energy (cont)</i>	<ul style="list-style-type: none"> <li>Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li>Nuclear Energy</li> <li>Hydroelectric</li> </ul>
Dec 01	<i>Solid and Hazardous Waste</i>	<ul style="list-style-type: none"> <li>Moore; Chapter 11: pg 463 – 495</li> <li>Supplemental viewing: <a href="#">The Story of Stuff</a></li> </ul>	<ul style="list-style-type: none"> <li>Variety and abundance of <i>Municipal Solid Waste</i></li> <li>Landfill design</li> <li>Source reduction: <i>reduce, reuse, recycle</i></li> <li>Hazardous wastes</li> </ul>
Dec 06	<i>Assessing Human Risk</i>	<ul style="list-style-type: none"> <li>Chapter 12: 499 - 517</li> <li>Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li><u>Guest Speaker:</u> Dennis Burton, Wye Research &amp; Education Center</li> <li>Defining risk</li> <li>Risk analysis</li> <li>Risk management and communication</li> </ul>
Dec 08	<i>Global Climate Change</i>	<ul style="list-style-type: none"> <li>Supplemental reading: <a href="#">Effects of Climate Change on Human Health in the United States</a></li> </ul>	<ul style="list-style-type: none"> <li>Causes</li> <li>Effects</li> <li>Controversy?</li> </ul>
Dec 13	<i>Wrap Up</i>		
	<b>FINAL EXAM</b>	<b>TBA</b>	

**SYLLABUS: DISCUSSION**

**ENST233**

**Fall 2010**

<b>Date</b>	<b>Topic</b>	<b>Reading Assignment</b>	<b>Activities / Discussion Topics</b>
Aug 31	– <b>NO CLASS</b> –		
Sept 07	<i>Ecosystem Services</i>	<ul style="list-style-type: none"> <li>• <a href="#"><i>Nature's Services: Ecosystems Are More Than Wildlife Habitat</i></a></li> <li>• <a href="#"><i>How have Ecosystem Services Changed?</i></a> – Millennium Assessment Synthesis Document</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Assign presentation groups</b></li> <li>• Discuss assigned reading</li> </ul>
Sept 14	<i>Food Availability</i>	<ul style="list-style-type: none"> <li>• <a href="#"><i>The End of Plenty</i></a> – National Geographic article on food availability</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Presentation groups select topics</b></li> <li>• Discuss assigned reading</li> </ul>
Sept 21	<i>Emerging Diseases</i>	<ul style="list-style-type: none"> <li>• <a href="#"><i>Its Spreading</i></a> – New Yorker article on Parrot Flu</li> </ul>	<ul style="list-style-type: none"> <li>• In class Presentation Group prep time</li> <li>• Discuss assigned reading</li> </ul>
Sept 28	<i>Water</i>	<ul style="list-style-type: none"> <li>• <a href="#"><i>Harvesting Monsoon Rain</i></a> – National Geographic article on Indian water use and conservation</li> </ul>	<ul style="list-style-type: none"> <li>• In class Presentation Group prep time</li> <li>• Discuss assigned reading</li> </ul>
Oct 05	<i>Debate over DDT use for Malaria control</i>	<ul style="list-style-type: none"> <li>• <a href="#"><i>To Spray or Not to Spray: A Debate Over Malaria and DDT</i></a></li> <li>• <a href="#"><i>Bate and Switch</i></a> – DDT propaganda machine</li> </ul>	<ul style="list-style-type: none"> <li>• In class Presentation Group prep time</li> <li>• Discuss assigned reading</li> </ul>
Oct 12	<b>Sustainability</b>	<ul style="list-style-type: none"> <li>• Selection(s) from “Choices...”</li> </ul>	<ul style="list-style-type: none"> <li>• <b>In class Presentation Group prep time</b></li> <li>• <b>Discuss assigned reading</b></li> </ul>
Oct 19	<i>In class group preparation</i>	<ul style="list-style-type: none"> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Group Presentation / Topic Paper outlines due</b></li> </ul>
Oct 26	<i>Presentation 1 &amp; 2</i>	<ul style="list-style-type: none"> <li>• Assigned reading TBD</li> </ul>	
Nov 02	<i>Presentation 3 &amp; 4</i>	<ul style="list-style-type: none"> <li>• Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
Nov 09	<i>Presentation 5 &amp; 6</i>	<ul style="list-style-type: none"> <li>• Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
Nov 16	<i>Presentation 7 &amp; 8</i>	<ul style="list-style-type: none"> <li>• Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
<b>Nov 23</b>	<b>THANKSGIVING</b>	<b>NO CLASS</b>	
Nov 30	<i>Presentation 9 &amp; 10</i>	<ul style="list-style-type: none"> <li>• Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
Dec 07	<i>Presentation 11</i>	<ul style="list-style-type: none"> <li>• Assigned reading TBD</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Topic Papers Due</b></li> </ul>
<b>Dec 14</b>	<b>Final Exam Review (optional)</b>		