ENS 131-03 Fall 2013
Introduction to Environmental Science: Natural Ecosystems and Human Disruption

Instructor: Kim Van Fleet
Office: Kauffman 180
Office Hours: Monday 10:00 – 11:30 a.m.
Tuesday & Thursday 9:00 – 10:00 a.m.
All other hours by appointment
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Lecture Tuesday and Thursday, Dana Hall Rm. 110, 10:30 – 11:45
Lab Kaufman Thursday 1:30 – 4:30

Text: Miller, G.T. and S.E. Spoolman. Environmental Science, 13th edition, United States: Thompson-Brooks/Cole

Required materials

- 8 ½ X 11 "Rite in the Rain" field notebook
- Electronic and paper copies of labs will be provided two weeks in advance of scheduled lab. It is up to the student to read the lab before class and be fully prepared to participate.
- Assigned readings related to lecture topics will be disseminated throughout the semester and be incorporated into both class lectures and discussions.
- Minimum of one article from a legitimate media source pertaining to the environmental sciences
- Water bottle and rain gear for labs

Course Goals

- To help students acquire an understanding of the complex dynamics (interrelatedness of all things living and non-living) and functions of natural ecosystems and develop an appreciation of and respect for all things living and non-living on this planet.
- To have students examine the human role within and comprehend how their behaviors affect these natural systems
- To provide the students with knowledge about sustainable and/or alternative approaches and practices that can benefit all living organisms
- To understand the interdisciplinary nature of environmental science
- To develop a working knowledge of the multiple tools used in the study of environmental science through lab activities and lecture materials

Labs and Field Trips

Field trips: Field trips will occur ***rain or shine*** so students should come appropriately dressed and prepared for all types of weather. Wear old loose fitting comfortable clothing (i.e. jeans, t-shirts, flannel shirts etc.), that you don't mind getting dirty/wet and allow for free movement. Sturdy shoes or boots are also recommended since field trips will require walking and hiking sometimes over uneven or rocky terrain. Sneakers will be adequate on some occasions (If you are not certain what to wear ask well before the lab). ***No open toed shoes or sandals are permitted.*** Remember temperatures are almost always cooler in the field and the winds can be stronger especially at higher altitudes. Since you will be more exposed to the elements especially later in the season it is recommended that you wear layers of clothing (you can always take something off if you get too warm) along with a jacket/coat, warm hat and gloves/mittens.

One or more labs will include wading in streams which could contain objects that can cut or puncture exposed flesh (broken glass, fish hooks, sharp rocks and other debris) so have an old pair of sneakers handy that you don't mind getting wet to wear on these occasions.

Labs/field trips are scheduled from 1:30 to 4:30 PM. Since numerous labs require travel to various locations in the field we will leave promptly at 1:30 p.m. to ensure that we have enough time for the class to arrive, conduct & complete the lab and return to school. Therefore if you are not in a van at 1:30 we will leave without you.

Also every attempt will be made to get back to campus by 4:30 p.m. however, there is always a possibility that we may get back at a later time due to unforeseen conditions or circumstances. So do not plan for other activities until after 5:30 PM on lab days.

Students will be required to write a formal lab report on either the aquatic Invertebrate and water quality or estimating deer density labs. Instructions for writing your formal lab report will be provided.

Course Requirements

- Reading assignments should be completed before lecture.
- Students are responsible to make up all work missed in lecture.
- Students are required to keep all graded work until course grades are posted at the end of the semester
- Each student must attend two biology or environmental science related meetings, events, or activities during this semester and provide a written report (see document on Co-curricular reports) within one week of attending the event.
- Although students may work in groups where the sharing of ideas is encouraged the actual writing of reports, exercises and summaries must be done independently to avoid plagiarism
- Spelling counts! No exceptions
- Attendance is **required** for all exams. A medical excuse is required if you miss an exam. The instructor may modify a make-up exam. If you are participating in sports, please clear all conflicts by the second week of classes.
- Attendance is **required** for labs. Labs are integral to course content and cannot be made up at a later date. If you are participating in sports, please clear all conflicts by the second week of classes.
- All reports and other assignments that are NOT turned in on time will be reduced by 10 points for each regular school day that they are late.
- Each student is required to attend at least one "out of class" event.

EACH STUDENT IS EXPECTED TO KEEP A BACKUP COPY OF ANY DOCUMENT PREPARED FOR THIS COURSE. IF FOR ANY REASON YOU TURN IN A DOCUMENT AND IT IS "LOST", IT IS THE STUDENTS FAULT IF THE STUDENT DOES NOT HAVE A BACKUP COPY. Dickinson College provides every student with storage space on the server. It is the student's responsibility to learn how to use this storage capacity.

Environmental Science (ES) in the news Media article (required)

Each of you are to bring in at least one article during the semester (on scheduled days*) pertaining to an environmental issue to share with the class. You must also write a short paragraph explaining in your own words what the article is about and submit it (with the article attached) at the end of the discussion. personal blogs and web pages are not allowed). The article must come from a current and **legitimate** news source. Finally you will briefly present it to the class at which time it will be open to discussion. Personal insight and evaluation are encouraged.

Sustainability project (group research and presentation)

Each randomly selected group will select one consumer good from a provided list of regularly consumed or purchased item/product. As a group you will research the item agreed upon by group members and track it throughout its lifetime (cradle to grave). During this process you will thoroughly assess whether or not the product is currently manufactured, used and disposed of in a sustainable manner. You will also examine this from environmental, ecological, economic, political, and social/cultural perspectives at the local, regional, continental and global levels. Is there already a sustainable alternative? If so describe why if not,then identify actions that could be taken to make it more sustainable. Finally take what you've learned from this project and relate it back to your life and consumption patterns and determine what you can do on a personal level to live in a more sustainable manner.

You will do a group presentation on your research and each student will individually write and submit a term paper on this project. Rubrics for the presentation and paper will be provided electronically to each student. It is strongly recommended that you save it immediately upon receipt n a secure location.

Class participation

Participation in class and lab is vital to the learning process and can take on many forms including but not limited to listening, doing, providing input, asking questions, challenging, presenting alternative insight or facilitating discussions.

Grading

Three 1 hour exams @ 10%	***30%***
Final exam (partially cumulative)	***15%***
Group sustainability project	***20% total***
Group presentation (10%)	
Individual report/term paper (!0%)	
Lab assignments	***20% total***
Formal lab report (5%)	
Other lab assignments (5%)	
Lab notebook (10%)	
Cocurricular reports 2@ 5%	***10%***
Class/Lab participation	***5%***

There will be three exams and a final exam. Please note that labs will constitute 50% of your grade (actual lab, lab participation, group sustainability project and extent of labs on each exam).
The plus/minus grading system will be used in this class. The following is a breakdown of how grades will be determined

A	94-100
A-	90-93
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D	60-69
F	below 60

Dickinson College Policy

*Dickinson College makes reasonable academic accommodations for students with documented disabilities. I am available to discuss the implementation of those accommodations. Students requesting accommodations must first register with Disability Services to verify their eligibility. After documentation review, Marni Jones, Director of Learning Skills and Disability Services, will provide eligible students with accommodation letters for their professors. Students must obtain a new letter every semester and meet with each relevant professor prior to any accommodations being implemented. These meetings should occur during the first three weeks of the semester (except for unusual circumstances), and at least one week before any testing accommodations. Disability Services is located in Biddle House. Address inquiries to Stephanie Anderberg at 717-245-1734 or email*disabilityservices@dickinson.edu*. For more information, see the Disability Services website: www.dickinson.edu/disabilityservices*

Tentative Class and Lecture Schedule

DATE	MAJOR TOPICS	LAB	READING ASSIGNMENTS
August 27	Science Matter and Energy		
August 29	Ecology and ecological processes (including nutrient cycles)	Keeping a lab/field notebook "Tragedy of the Commons" Introduction to group sustainability project	Chapter 3 section 3:4 & Chapter 4 section 4:3 **"Tragedy of the Commons"** *by Garret Hardin*
September 3	Ecosystems and Levels of organization		Chapter 3 sections 3:2 & 3 and Chapter 7 section 7:2 *ES topics in the news*
September 5	Ecosystems and biodiversity	Turtle trapping Wildwood Park, Harrisburg	Chapter 4 Sections 4:1,5, & 6
September 10	Evolution, Speciation, adaptation or extinction		Chapter 4 Section 4:2 & 4, & Chapter 5 section 5:3
September 12	Ecological relationships and population dynamics	Introduction to Land Use and the Geology of Cumberland County	Chapter 5 **"The Little Things That run the World"** *by Edward O. Wilson*
September 17	Ecological relationships and population dynamics (cont.)		Chapter 6 *ES topics in the news*
September 19	**EXAM 1**	Sustainability project library research	
September 24	Change through natural processes ***Outline for group sustainability project due***		Chapter 4 section 4:3

September 26	**Ecosystems and environmental health**	Biodigester	Chapter 7 section 7:3,4,5 & 6
October 1	Threats to biodiversity		Chapter 8 sections 8:1-4 *ES topics in the news*
October 3	Threats to biodiversity	Estimating Deer Density I Florence Reineman Sanctuary	
October 8	Land, water and air resources		
October 10	Pollution: The human factor and our impacts on land, water and air resources	Biodigester	Chapter 14 **"Voices From White Earth"** *by Winona LaDuke*
October 15	Pollution: The human factor and our impacts on land, water and air resources (cont.)		Chapter 16
October 17	**EXAM 2**	Estimating Deer Density II Florence Reineman Sanctuary	***Co-curricular 1 due***
FALL PAUSE OCT 18 5:00 PM –OCTOBER 23 8:00 AM			
October 24	Global climate	Macroinvertebrates, water chemistry and quality	Chapter 7 section7:1 ***First draft of sustainability paper due***
October 29	Global climate change		Chapter 15 *ES topics in the news*
October 31	Energy demand and need: A primer on resource extraction, consumption, waste and efficiency	Visit Cumberland County Landfill	Chapter 13
November 5	Case studies: Coal and Shale deposits, their extraction, uses and impacts on resources and human health		
November 7	Topics in Management & Sustainability The land conservation ethic	Visit wastewater treatment facility	**"The Land Ethic"** *by Aldo Leopold* *ES topics in the news*
November 12	**EXAM 3**		

November 14	Feeding a growing global community Conventional and sustainable practices	Visit College Farm	Chapter 10
November 19	Restoring degraded land, air, and water		*ES topics in the news*
November 21	Adaptive management strategies Wise land use decisions	Cumberland county then and now: shifts in land use and development	**"Toward Legal Rights for Natural Objects"** *by Christopher Stone*
November 26	Ecological and economic benefits of Sustainable Forestry Practices		Chapter 9 sections 9:1 & 2 ***Final paper on group sustainability project due***
THANKSGIVING HOLIDAY 5: PM NOVERMBER 26– 8:00 AM DECEMBER 2			
December 3	Case study: Management strategies for neo-tropical migrants on breeding and wintering grounds		**2nd co-curricular due**
December 5	Changing human behaviors as an adaptation strategy Class discussion	**Group Presentations**	
December 11	**FINAL EXAM 2:00 P.M.**		