Introduction to Environmental Science/Studies
ENVS 131Q, SNT, Sustainability
Fall 2014 T.R. Wade

"When we tug at a single thing in nature, we find it attached to the rest of the world."
— John Muir

Environmental Science is an interdisciplinary study combining thoughts from many areas including biology, chemistry, geology, economics, politics, ethics, etc. It is a study of how the earth works, how we affect the earth's life-support systems, and how we deal with environmental problems. In this course students begin with a study of natural ecological systems and principles in order to understand the interconnected complex workings of our world. Students then apply these ecological principles to local and global environmental problems as we study the human impact on the biosphere. Students will be confronted by new thoughts and ideas as we wrestle with various environmental issues and hopefully learn how to live more sustainably on this earth.

ENVS 131 counts for the Environmental Science Major and the Sustainability Minor. In addition, ENVS incorporates the Oxford College GEP **Sustainability Theme, A Life in Balance,** as sustainability is one of the key themes of this course. ENVS 131 also counts towards the SNT and INQ requirements for the Oxford GEP.
Upon completing the Science, Nature, Technology (SNT) General Education requirement, students will be able to:
• Analyze data, develop hypotheses, and design experiments to address scientific questions
• Use problem solving, critical thinking, and quantitative skills to address scientific questions
• Communicate scientific information verbally and in writing
These three objectives are also an integral part of the Ways of Inquiry for Environmental Studies**.**

"Ways of Inquiry" courses *are designed to introduce students to the specific ways knowledge is pursued in each discipline through the process of discovery, by engaging them in actively learning and practicing the discipline's approaches to inquiry. INQ courses start with questions, are student-centered and often collaborative, and place increasing responsibility on students for their own learning. Students not only experience each discipline's distinctiveness but also move beyond its boundaries to understand connections with other disciplines and fields, including, when possible, ethical issues, social responsibility, and civic engagement.*

The Ways of Inquiry as used in Introduction to Environmental Studies:
Students will have a chance to participate in the practice of environmental science over the course of the semester. Making observations, asking questions, formulating hypotheses, designing investigations and collecting data will be an integral part of the laboratory portion of this course. In lecture, students will read texts, formulate questions and discuss issues around these questions to understand basic principles of environmental science.

Proposed Lecture Schedule

Pierce 101, 10:00 a.m. – 11:40 Tuesday/Thursday

Date		Topic	Chapter/Section
Aug.	28	Introduction to Environmental Science	1
Sept.	2	2 major themes of environmental studies	Paper by Hardin
	4	Ecoeconomics and Environmental Policy	20
	9	Key Global Environmental Indicators	1
	11	Systems, Energy and Ecosystems p. 39,42-43, p.112	3
	16	Water cycles (prep for flim)	3
	17	**My Toxic Backyard flim: Williams Hall 7:30pm**	
	18	**Class in Seney 4th floor Conference Room with Producer**	
	23	Carbon, Nitrogen and Phosphorus Cycles	3
	25	**Test I**	
	30	Population Interactions, Distribution and Growth Rates	6
Oct.	2	Human Population Dynamics/age structure/demographic models	7
	7	Water Resources	9
	9	Chattahoochee: Typical Urban River Issues	14
	14	**Fall Break**	
	16	Everybody lives downstream of somebody	14
	21	Air Quality: Primary and Secondary Pollutants	15
	23	**Test II**	
	28	Smog, Acid Rain and the environment	15
	30	Stratospheric Ozone Thinning	p.52-55, 425-427
Nov.	4	Global Climate Change: The Evidence	19
	6	Climate Change: Solutions p. 572-574	19
	11	Sustainable Agriculture	11
	13	Feeding the 9 billion	11
	18	What is a species? How did they evolve?	5
	20	How did they evolve?	
	25	**TEST III**	
	27	**Thanksgiving Break**	

Dec.	2	Biodiversity: Threats, Protection and Policies	18
	4	Conservation efforts	
	9	Wrap it up!	

FINAL EXAM – Fri. Dec. 12, 2014- 9:00-12:00 (Test 4 and Cumulative Section)

Text: *Environmental Science, Foundations and Applications*, Friedland, Relyea and Courard.
Blackboard Website: ENVS 131 also has a blackboard site that will be helpful to you for lecture, lab and research resources. I'll let you know when it is available for use.

Laboratory Goals: One of the goals of environmental education is to provide opportunities for students to get to know the "place" where they live and make connections to the natural world so that they can better understand the human impact on these natural settings and make more informed decisions about the world in which we live. During the laboratory portion of the class students will explore various ecosystems of our ecoregion, the piedmont of GA. In addition, students will have the opportunity to learn sampling and other techniques used by scientists in the field.

Lab meets 1:40-4:40pm, Thursday afternoons in Pierce 101. There is no lab manual; handouts will be given for various labs and also be made available on the blackboard site.
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Proposed Lab Schedule

Aug.	29	First Day of classes…no lab today
Sept.	5	Scientific Investigation – Biodiversity Study-Farm
	12	Biodiversity at the Farm
	19	Terrestrial Investigation – Oxhouse Science Center
	26	Introduction to Primary Succession – Newton Co. Outcrop
Oct.	3	Primary Succession Investigation-Mt. Arabia
	10	**Mid Term Lab Practical in lab**
	17	Stream Assessment at the stream
	24	Stream Assessment in lab
	31	Introduction to Wetlands
Nov.	7	Wetland Investigation – GWF property
	14	Water Reclamation as Stream Protection
	21	**Final Lab Practical**
	28	**Thanksgiving Break**
Dec.	5	Invasive Species in the Oxford Forest

Lab schedule is subject to change based on any number of uncontrollable factors (the blooming of flowers, trees dropping their leaves, hurricane rains, etc.) ☺

Writing Assignments: Students will be submitting various types of writing including lab reports, critiques, position papers, The Forest Unseen Project, Meatless Mondays Reflections, Questions for Discussion, etc.

Evaluation:

Tests	300 points
Midterm Lab Practical	75 points
Final Lab Practical	75 points
Writing Assignments (class and lab)	80-100 points
Class Participation (lecture and lab)	15 points
Final Exam	175 points
*Total Points	about 720-740 points

*Total points may vary based on possible changes in certain assignments over the semester. Grades are assigned on a plus-minus scale.

Office Hours: Wednesdays 9-10 a.m. OR by appointment (4-8395) OR you can always just come look for me but remember I might be working in the labs or out in the greenhouse.

HONOR CODE: The Honor Code of Oxford College applies to all work submitted for credit in this course. All such work will be pledged to be yours and yours alone. This is the case when you place your name on any work (tests, writing assignments, lab reports, research papers, etc.) submitted. There will be times when you may work in a group to collect data but the writing assignments will be on your own after that point. If you have any questions about how the honor code applies to any tests or assignments please ask me!

Oxford/Emory Self Assessment: Student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education.

Absences: The absence policy is outlined in a separate handout. Unexcused absences or a failure to follow the procedures outlined in that handout will result in a reduction of your grade. Penalties are stiff so pay close attention to the handout. Additionally, tardiness is rude to other students and to the professor and will result in a decreased grade.

Cell Phones: They must be turned off if brought into class or lab. They take your attention away from the class and are an unnecessary distraction in the class, field and vans. Cell phone etiquette requires one to step away from others when talking on the phone so that you respect their time and space. Phones must be left at the front of the classroom in your book-bag during tests.

Laptops and iPads: If you would like to take notes on your personal laptop or IPad in class you must request permission from the instructor. Use of laptops to chat or network on Facebook, Outlook, Skype, etc. is not permitted.

Tips for being successful in this class:

Be prepared <u>for</u> class: Read assignments before coming to class so that the material will sound familiar to you as we go over it in class and you can make significant contributions to class discussions/activities.

Be prepared i<u>n</u> class: Bring textbook to class as we will refer to diagrams and material in the text during class time for various activities.

Take good class notes: Handouts and other supplemental materials will be given to you on occasion in class but a set of good class notes is imperative for mastering the material.

After class: Go back over your notes. If you have "holes" in your notes, get the missed material from another student in the class or see me during my office hours. Do not wait until the test to fill in these gaps.

Preparing for tests:
-Taking good notes is the first step in preparation for the tests. Handouts are an important part of your class notes.

-Don't wait until the last minute to begin preparing your study guide and/or note cards for the tests. You will want to save these study guides to use in studying for the final exam since it has a cumulative portion.

-If you do poorly on a test come to see me so that you can go over the key and figure out where you made mistakes. Again, a good set of class notes is key to performing well on tests in this class since Powerpoint presentations are usually more pictures than text.
