

## **GEOL 110-301: Introduction to Environmental Science – Summer I 2010**

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Textbook: Essential Environment: The Science Behind the Stories (3rd edition) by J. Withgott and S. Brennan – also available for purchase as an e-textbook through the publisher

Publisher Website:  
[http://wps.aw.com/wps/media/access/Pearson\\_Default/4893/5010916/login.html](http://wps.aw.com/wps/media/access/Pearson_Default/4893/5010916/login.html)

*For those students needing to complete a science lab course, GEOL110 and GEOL110L do meet the general education requirement.*

### **Course Description:**

GEOL 110 (ENVI110) is an introductory, interdisciplinary science course for students wishing to satisfy their general education requirement for a science course [Scientific and Mathematical Studies – Foundational (SMS:F,E), FS2010 – Science with lab].

This course presents the environment as a complex, highly interrelated system of physical and biological processes that impacts virtually every sphere of human activity. We depend on the environment for basic necessities such as food, water and the raw materials that we transform into shelter; we rely upon large-scale environmental processes that provide ecosystem services, such as the climate regulation and the natural flood control provided by forests and wetlands; and yet we also incur the sometimes catastrophic consequences of major environmental events, such as earthquakes, hurricanes and drought. Increasingly, human activity is altering these basic physical and biological environmental processes; the human population has more than doubled since 1960, and our economic activity in developed and developing countries has heightened our demand for limited environmental resources, such as arable land and clean water. Other consequences of increased human activity are less obvious, but no less consequential. It clearly benefits us to acquire a better understanding of this environment that we depend upon and influence so dramatically.

In this class we will explore the various processes that contribute to the functioning of the environment, as well as the ways we interact with it. We will introduce topics using a case-studies approach, in which we use current news stories as a launching point for our science-based investigations. We will investigate the science of the environment, delving into how environmental issues and problems can be understood and addressed using the scientific method. Most importantly, we will focus on how you, whether a scientist or lay citizen, can take a scientific and informed approach to real-life decision making, whether in the workplace, marketplace or voting booth. Throughout, we

emphasize the importance of using critical thinking and evidence to draw conclusions and suggest actions.

### **Course Goals**

- Increase our knowledge about the scientific process and the importance of science in making informed and reasonable choices.
- Develop critical thinking skills and critical analysis through problem solving of practical problems associated with the physical and biological environment.
- Advance our understanding of environmental science by applying basic principals of physics, chemistry, geology, biology and ecology as they relate to the environment.
- Improve our knowledge of human-environment interaction in order to predict and plan for future sustainability.
- Build a global awareness that emphasizes the importance of understanding the natural world as an integrated system with many interacting parts.
- Increase communication skills through class discussions, writing short essays, reading assignments, and note-taking assessments.
- Upon completion of this course, students should be knowledgeable and skilled enough to explain verbally and in writing the basic principles of environmental science to any member of the community. This includes applying knowledge to novel situations which may arise in the future.

## Tentative Schedule

<b>Week Beginning</b>	<b>Topic</b>	<b>Chapter</b>
7-Jun	Introductions	1
8-Jun	Economics and Policy	2
9-Jun	Chemistry, Energy, and Ecosystems	3
10-Jun	Evolution, Biodiversity, and Population Ecology & Community Ecology	4, 5
14-Jun	Biodiversity and Conservation Biology	8
15-Jun	Human Population	6
16-Jun	Soil Agriculture and the Future of Food	7
17-Jun	<b>Exam 1</b>	
21-Jun	Cities, Forests, and Parks: Land Use and Resource Management	9
22-Jun	Waste Management	17
23-Jun	Environmental Health and Toxicology	10
24-Jun	Fresh Water, Oceans, and Coasts: Systems, Resources, and Conservation	12
28-Jun	Atmospheric Science and Air Pollution	13
29-Jun	Geology, Minerals, and Mining	11
30-Jun	<b>Exam 2</b>	
6-Jul	Nonrenewable Energy Sources, Their Impacts, and Energy Conservation	15
7-Jul	Renewable Energy Alternatives	16
8-Jul	Global Climate Change	14
9-Jul	<b>Comprehensive Final Exam</b>	

## **Class Participation**

Please keep in mind that each day during the summer session is almost the equivalent of 1 week during a regular semester...for this reason, you will have several discussion board entries due each week based on your reading assignments; however, one out of every four discussion board grades can be dropped. For example, this means that in a week with four discussions, you only need to contribute to three. This does NOT mean that you can skip the last four discussions. You are expected to make two substantive comments on each topic discussion board to get all of your points for that discussion topic. On Sunday of each week (except the final week), I will consider the discussion boards for that week closed and subsequent posts will NOT be graded. If you post your first comment in a thread by Wednesday of the week they are due, you will get one (1) bonus point added to your participation grade.

There will be one discussion board for the class. I will start a thread each week for all of the discussion board topics. Participation grades will be based on each student's contribution to group discussions. Often these discussions are focused on case studies that are presented in the textbook or provided as additional reading assignments. Several questions will be posed and the class needs to discuss the questions and each other's comments using the discussion board. In many cases, students will be expected to **seek additional information** that is not included in the textbook or supplementary reading. Grades will be based partially on the additional content students bring to the discussion board that was not provided by the instructor. Discussion topics will be made available no later than Monday of each week.

This is an opportunity to share ideas and opinions. Discussions are expected to be used for the discussion of course material only, and all students should be respectful of each other's ideas and comments. You do not need to post a summary of the case studies, but instead answer the questions that are posed in the learning unit for each week and interact with each other. Posts that include comments that are not substantive (i.e. "I agree with everyone", "everyone has posted great information", "I don't have much to add", etc.) will not receive points. You may receive up to 15 points for each discussion you participate in (plus one bonus point if you post comments by Wednesday).

Please keep in mind that the quality of the online discussion and personal reflection is a major component of this course. I will check the boards on most days and contribute as I think appropriate. I will also comment on misconceptions and inaccuracies that come up on the board as well as some of my own opinions.

## **Reading Assignments**

Your chapter reading assignments are listed in the tentative schedule. Very general outlines of the chapter are provided as PowerPoint slides. These slides should not be used as the sole guideline for your chapter notes, but should guide your readings and highlight the most important points in each chapter. Online reading quizzes will be available for each week. You can take the quizzes as many times as you like. The quizzes are completely optional; however, for each quiz you complete, you will receive 5

points out of 5 points possible. The quiz points will be added to the gradebook at the end of the semester. Each student may have a different total number of points possible depending on how many quizzes they complete. The reading quizzes can be accessed through the learning unit for each week.

## **Exams**

There will be two regular exams in this course and a comprehensive final exam. Each of regular exams will be worth 100 points. We will also have a comprehensive final exam worth 150 points. Exams will consist of multiple choice questions and short answer questions completed individually. Each exam will be broken into two sections – a multiple choice section and a short answer section that allows you to take the different parts at different times. If you close your browser without completing the exam, refresh your browser, or lose your internet connection, you will be locked out, and will not be able to continue. You will have two chances to take the multiple choice portion of each exam; however, the last score is the one that counts. After you complete the exam once, you will be able to see your score only and you can decide to re-take the exam if you like. This is also option because many people have internet problems at one point or another and get kicked out of Blackboard. You will also have a limited amount of time to take each part of the exam (90 minutes). The scheduled exams can be made up; however, make-up exams will consist of a limited number of short-answer questions. It is highly advised that you do not miss any exams.

Note the comprehensive final exam will contain new material on global change and energy resources.

We may also have additional quizzes as necessary.

*Week 1 you will have a quiz over the syllabus. This must be completed by Wednesday, June 12 at 11:59 pm EST. This quiz is to ensure that you have read and understand course expectations. It is worth 25 points.*

## **Short Writing Assignments**

During the course of the semester, you will be expected to submit four (4) short writing assignments (750 - 1000 words) based on a current news article (3 months or less since publication) that relates to class material – due dates are listed at the end of the syllabus. You can use print and respectable online news sources (i.e. Time, CNN, etc.). You should NOT use personal blogs or company websites and news releases. You will have one writing assignment due each week. Each writing assignment is worth 40 points and should be related to a topic that was recently discussed or presented in the textbook. The rubric used to evaluate your short writing assignments will be made available in the assignments link.

The minimum requirements for each writing assignment should include: a complete bibliography and hyperlink if appropriate; a statement describing the goals and main point of the article; a summary of the evidence presented in your own words (paraphrasing rather than using direct quotes) in well developed sentences and

paragraphs; a paragraph describing the relationship to course material; a list of any additional references you consulted. These writing assignments should be more than just reports. The objective of the assignment is to articulate your ideas about the news item and relate the item to the course. You need to make as many linkages as possible.

Short writing assignments are abbreviated SWA 1-4 in the Blackboard gradebook. Late papers will be accepted with a penalty of 10% per calendar day. Paper grades will be based on both content and readability: 50% on content (including appropriate scholarly resources) and 50% on grammar, spelling, punctuation, organization, and the proper use of the English language. You should proof read your paper and/or have a friend proof read your paper prior to turning it in. All papers should be double spaced in 12-point font with one inch margins. Plagiarism will not be tolerated, and will result in a **minimum** punishment of a zero (0) for the assignment. You are expected to use scholarly references (i.e. not websites unless they are known to be reputable and of high quality). Please note that Wikipedia is not a reliable or scholarly reference and should not be used in scholarly writing. If you use Wikipedia or other similar websites, you need to identify five additional sources to verify the information you present. Papers must be submitted electronically through Blackboard as a TurnItIn assignment, which means that each paper will be automatically checked for plagiarism once it has been submitted. The link for the assignments can be found under assignments, and you simply click on the assignment to complete it. Do NOT submit your papers using the Digital Dropbox. When saving and uploading your writing assignments you should use the following naming convention: SWA#\_last name, for example, SWA1\_Latimer

Examples of excellent, good, and poor writing assignments will be available for you to review on Blackboard.

One SWA score will be dropped.

SWAs are due on at 11:59 pm EST as follows:

SWA1 – 06/13/2010

SWA2 – 06/20/2010

SWA3 – 06/27/2010

SWA4 – 07/07/2010

NOTE: If you have submitted your paper correctly an “!” will appear in the gradebook for that assignment. An “!” also means that I have not yet graded the assignment. If you do not have an “!” in the gradebook, you need to re-submit your paper.

### **Online Office**

In addition to contacting me via email, phone or during office hours, you can also post questions to the discussion board on the online office forum. I will check the online office twice weekly (Tuesdays and Fridays) and reply to any questions that may have

been posted. This is a great place to post general questions about the course or assignments. This is also a great place to look for answers to your questions.

### **Extra Credit**

Extra credit opportunities are limited to those presented in the syllabus – the two items below. All extra credit must be completed by **July 7th**. Extra credit assignments will only be accepted from students who have completed the majority of their assignments.

1. Interview someone who works in an environmental field. Describe what this person's primary job responsibilities are, and how the job is related to material covered in class.
2. Visit the Indiana State Museum, a state/national park/forest, zoo, or aquarium. Describe some of the environmental and conservations issues discussed and presented. How does the material presented relate to course topics?
3. Attend local presentation and seminars related to environmental science and write a short paper describing the purpose of the event, what you learned, how it related to class, and what you thought was interesting.

### **Academic Dishonesty**

Academic dishonesty is a serious offense because it undermines the bonds of trust and honesty between members of the community and defrauds those who may eventually depend upon our knowledge and integrity. All students are expected to adhere to the Code of Student Conduct. Academic dishonesty (including plagiarism) in any portion of the academic work in this course shall be grounds for awarding a grade of F for the work or the entire course and Student Judicial Programs will be notified of the academic integrity violation.

### **Grades**

Grades will be assigned based on the following distribution of points and percentages.

Exams	100 points each (100 X 2)
Final Exam	150 points
Writing Assignments	40 points each (40 X 3)
Group Discussion	15 points each topic
Syllabus Quiz	25 points
Additional Quizzes	variable as needed

100 – 90	A
89 – 80	B
79 – 70	C
69 – 60	D
<60	F

Note – + and – grades will be assigned.

### **Getting Started:**

- Monday of each week, the new learning unit for the week will be made available in “Course Documents” on Blackboard. These learning units contain reading/chapter objectives, and discussion topics, as well as links to relevant PowerPoint files and reading quizzes. Note for the purposes of this course, the week begins on Monday and ends on Sunday.

SWAs are due on at 11:59 pm EST as follows:

SWA1 – 06/13/2010

SWA2 – 06/20/2010

SWA3 – 06/27/2010

SWA4 – 07/07/2010

Week 1 – You have group discussions, a quiz over the syllabus, and a reading quiz.