

Professor: Peter Melcher

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office hours: Monday 12:00-1:00

Course Description:

In this course we will examine: the history of Earth's climates and factors that have caused these changes; key anthropomorphic activities that have altered ecosystems and natural environments; food production and factors that drive global food markets; agricultural styles (traditional, organic, sustainable agriculture) and their impacts on the environment and human health; genetic engineering and how it will impact agriculture and pharmaceuticals; cheap oil and how it shaped America and Western agricultural practices; limiting agricultural resources (soil and water); concepts of sustainability and how individual decisions alter business practices; we will investigate ecological footprints and discuss what we can do to change. Lastly, your task will to become visionaries and propose alternatives to current practices that lead to environmental degradation and discuss the hurdles that seem to make implementation of these ideas difficult.

Required Course Texts:

Lester R. Brown	Plan B 3.0: Mobilizing To Save Civilization	978-0-393-33087-8
Michael Pollan	Omnivore's Dilemma – A Natural History of Four Meals	978-0-14-303858-0

Handouts will be generated from the following sources (you are free to purchase them but they are not required)

Bill Bryson	A Short History of Nearly Everything	0-7679-0818-x
Bill McKibben	Enough: Staying Human in an Engineered Age	0-8050-7519-4
Edward. O. Wilson	The Future of Life	0-679-76811-4

Expected Learning Outcomes

In this course you are expected to learn:

- the history and factors that have altered the chemical composition of the biosphere
- how the biosphere impacts climate
- factors that shape the natural biota
- how natural and anthropomorphic activities impact ecosystems
- concepts of sustainability
- agricultural strategies and the major crops of the world
- demography
- factors that drive agricultural practices
- genetic engineering and what is in store for the future

Methods of Assessing Expected Learning Outcomes (performance evaluation)

- attendance and in class participation will be monitored and will impact your grade
- random quizzes and exercises will be given to test your comprehension of course and lecture materials

- an in class presentation will be graded to assess the depth at which you understand a specific topic
- written assignments/exams will be used assess the depth at which you have learned course topics

Grading Rubric

Grading out of 100%	(%)
class participation	10
quizzes	10
presentation	20
essay 1	30
essay 2	30

Participation/attendance

Your participation in class discussions will be noted and used to evaluate 10% of your course grade.

Quizzes

Short quizzes will be given at random in class to assess your preparedness and depth of what you learned from both the reading and lecture material covered in class, these quizzes are really a way for you to know if you are getting the material.

Student presentations

Each student presentation topic must focus on one of the course topics.

Points for presentations will be assigned as follows:

- (30) Preparedness: your knowledge of the subject matter
- (30) Organization of presentation: (could the audience follow the presentation)
- (30) Content: did you cover the major issues within your topic, did you cover enough background information so that audience could follow your logic and did you express your views and thoughts on the subject matter **did you state your conclusions? Did you Propose Alternatives or potential Solutions to the issues presented.**
- (5) Cite your Sources
- (5) Your ability to address questions appropriately

To prepare for your topic presentations you are required to conduct literature searches, use the library, and look up reliable information online. You will have to assess the credibility of these sources. You are required to cite all of your sources including your online sources in your presentations. You should not hesitate to email experts and get their opinions on specific topics. You must compile your data and information into an organized 10 min presentation this will be followed by a question and answer discussion session.

Essays

Mid semester term paper (5-8 pages) will be written on a course topic covered in lectures (selection must be different than the topic that you will present on).

How your Essays will be evaluated and graded.

- Organization of Essay (15 points). Can the reader follow the logic of the paper?

- Background information (20 points). Did you provide enough background information, so that a reader can understand how previous work and previous ideas (conducted by others) relate to how you reached your conclusion(s).
- Essay content (30). Did you cover the major issues of your topic in sufficient detail (within the page limits of the assignment).
- Did you express your views and thoughts on the subject matter (30). ***I want to know what you think about this subject matter – what are your conclusions?***
- *Source your references.* (5) Do **not** plagiarize, you must use your own words and present your own ideas. If you use the ideas and writings of others then you must provide a complete citation so that I can look up your references. If you do not cite sources properly in your paper and I find that you have plagiarized the work of others you will receive an F grade. I will also follow the guidelines detailed in your student handbook on plagiarism and refer this to the school judiciary system. Please refer to your Student Handbook for a detailed description of the policies regarding student academic conduct.
- *Proof read your work.* I will deduct points for spelling errors and (major) grammatical errors.
- You are required to conduct literature and online searches. You will have to assess the credibility of your sources. You are required to cite all of your sources in your essay. You should not hesitate to email experts and get their opinions on specific topics (cite as personal communication in your essay). You must compile your data and information into an organized 5-8 page double spaced essay.

In a nutshell grading of written work can be summed up as follows:

A = exceptional work, extremely impressive, near flawless in terms of content and presentation

B = above the expectations of the assignment, but has room for improvement in terms of content and/or presentation

C = meeting the obligations of the assignment, lacking sufficient attention to content and presentation

D= does not meet obligations of assignment, and lacking sufficient attention to content and presentation

F = unacceptable level of effort for the assignment

Academic Honesty:

All the work in this class must be your own, unless stated otherwise. Confirmed instances of academic misconduct will result in a zero for that test or assignment and referral to the school judiciary system. Please refer to the Student Handbook for a detailed description of the policies regarding student academic conduct.

Attendance:

You are expected to come to lecture. There is a significant correlation between exam performance and lecture attendance. Therefore, it is strongly encourage you to make every effort to attend lectures.

Accommodations

In compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, reasonable accommodation will be provided to students with documented disabilities on a case by case basis. Students must register with the Office of Academic Support Services and provide appropriate documentation to the college before any academic adjustment will be provided.

Tentative Course Schedule

Date	Day	Topic	Text	reading chapters
1-20	T	The Scientific Process: real life examples: Determining Earth's Age	syllabus handout - Bryson	4
1-22	R	The Mighty Atom and some important chemistry	handout -Bryson	9
1-27	T	Lonely Planet and the biosphere	handout - Bryson	5 and 10
1-29	R	Earth's delicate thermal blankets. History of Earth's Changing Climate	handout - Wilson	5
2-3	T	Simple Metabolism and understanding how it regulates global CO ₂ cycles	handout - Bryson	13 and 14
2-5	R	Anthropogenic Climate Change		
2-10	T	Demography 101	Brown	1
2-12	R	Nova Film: The World in Balance: The Population Paradox	Brown	2
2-17	T	Demography and tragedy of the commons	Brown	3
2-19	R	oil and water	Brown	4
2-24	T	natural systems under stress	Brown handout - Wilson	5 and 6 4
2-26	R	The Commons Game		11
3-3	T	The Future of Energy	Brown	12
3-5	R	Movie TBA	ESSAY I	
3-10	T	<i>SPRING BREAK</i>		
3-12	R	<i>SPRING BREAK</i>		
3-17	T	What are Genes anyway?	handout - McKibben	1
3-19	R	Genetic Engineering		
3-24	T	Staying Human in an Engineered Age		
3-26	R	Building a New Future	Brown	13
3-30	T	Discussions of Other Solutions	handout -Wilson	6
4-2	R	STUDENT PRESENTATIONS I		
4-7	T	STUDENT PRESENTATIONS II		
4-9	R	STUDENT PRESENTATIONS III		
4-14	T	History of Agriculture (lecture and a short movie)	Pollan	1 and 2
4-16	R	Global Food Production	Pollan	3 and 4
4-21	T	GMO's in food	Pollan	5 and 6
4-23	R	Traditional Farming	Pollan	7 and 8
4-28	T	Organic Farming	Pollan	9 and 10
4-30	R	Local and sustainable farming	Pollan	11-14
5-4	T	Feeding Eight Billion Well	ESSAY II Brown	9