

CORE 120S: Earth Resources

M W F 1220-1310

Ho Science Center Room 238

Course Description:

Management of the Earth's energy, mineral, and water resources is a subject of ongoing controversy and debate. This debate revolves around two related issues: the diminishing supply of some resources and the environmental cost of resource extraction and energy production. This course examines the origin and geologic setting of Earth's resources, and how these factors influence resource exploration, extraction, and use. Environmental and economic aspects of resource extraction are explored. Students examine the public debate about resource management and conservation, as well as the roles of politics and the media in shaping this debate. This course emphasizes student-led discussions of case studies dealing with current resource-related topics. The purpose of this course is to create a framework in which resource issues can be evaluated, integrating the scientific and social issues inherent in resource development.

Professor: Kelsey Winsor
Office: 334 Ho Science Center
kwinsor@colgate.edu

Office hours: M W 1030-1130 (my office)
M W 1330-1530 (Hieber Café...subject to change)
or, by appointment

Texts:

- Strongly recommended: *Earth Resources and the Environment*, 4th edition (2011), by Craig, Vaughan, and Skinner. A copy will be on reserve in Cooley Library. There is also an e-book version for rent.
- Required, in whatever format you want: *The Control of Nature* (1989), by McPhee. A copy will be on reserve in Cooley library. The chapter we will be reading is also available for free online.
- Additional required & recommended electronic readings will be available on Moodle.

Course Objectives & Goals:

By the end of the class, you should be able to:

1. Have informed, rational discussions of resource issues incorporating scientific evidence and social awareness/justice.
2. Dissect an argument into social and scientific component. Make an argument based on solely scientific evidence, and solely on social evidence.
3. Explain the basic geologic origins of freshwater, energy, and mineral resources.
4. Explain how several Earth Systems process (e.g., geochemical cycles, tectonics, hydrological cycle) combine to form resources.

Additionally, you should have had some practice identifying social issues surrounding resource accessibility and use. The goal here is to refine your empathy for people experiencing resource-related problems.

Assessment:

Your understanding of course material will be assessed via:

25%	Data & Methods Analyses
20%	Response Papers w/ Reviews
20%	In-class Activities
15%	Mid-term Exam
20%	Final Exam

You will earn full credit for completing in-class activities. Therefore, a full 20% of your final grade is decided by simply doing the assignments. As such, you will be graded relatively critically on the remaining assignments—this structure is meant to push you and give you feedback on improvement without causing your GPA to suffer.

I will drop two zeros for in-class activities, which means that you can be absent twice without directly affecting your grade. While I am not grading your class participation in general, you will receive an in-class activity grade (full credit) when we do small-group discussions. You are responsible for being in class for all peer review sessions and exams, and for turning in all other assignments on time. Your final exam will be cumulative, with emphasis on the material covered after the first exam.

Late homework will lose 20% for the first week, and will not be accepted after that. If you know that you will be traveling (sports, interviews, family, etc.) and will miss an exam or peer-review session, you must let me know ahead of time so we can schedule a make-up test/review. Exceptions to these policies may be made in case of serious illness, injury, learning disability, or family emergency—please let me know as soon as you can if this applies.

Final exam time: Friday, December 19, 0900-1100

Course Structure & Expectations:

You will note that some readings are from your textbooks, and others are provided online. Exam and quiz material will be taken from both the readings and the class periods. In general, you can expect that reading the textbook material before class will help you understand that class, but you are welcome to read it at whatever pace you choose for your own learning. However, reading the supplementary online material will be crucial to participating in class discussions. As you will often be working with partners or in small groups for discussions, doing these online readings *before* class will be very important.

We will have many discussions and do group work during this course. Occasionally, we will be discussing topics that may evoke strong emotions or opinions. The goal of these

discussions is to improve your understanding of the nuances and complexity of the subject matter, and you should participate in discussions to learn, not to prove that your previously held beliefs are correct. It is important that everyone is respectful of everyone else in the class. I will do my best to make this a comfortable learning environment for you—please let me know if something is bothering you, so I can help adjust things.

A note about class participation: I know it is difficult for some people to speak in class. I used to be very nervous about talking in front of people. I find it helpful to write down some speaking points ahead of time, so I will have something to refer back to when I get nervous. Everyone wants to look smart in front of their peers, but a classroom is a space for improving your understanding, not for housing people who already know everything.

Computers and cell phones in class: using them is up to you unless it becomes distracting for other students. But, do know that studies have shown that students learn less when they try to multitask with electronics.

Additional Assistance & Resources:

A copy of each of the two texts is available in the Cooley Science Library reserves. You may also find it useful to read sections from introductory geology texts—there are a number of these in the science library, and I can point you to specific texts if you have questions about a certain topic. I will assign occasional additional readings, which I'll upload or link to Moodle.

If you are interested in improving your writing (which you should be!), the Writing & Speaking Center is in Lathrop Hall room 208. Peer writing consultants can help you refine your writing by reviewing a paper's focus, development, organization, clarity, grammar, source integration, or other aspects. For more information or to make an appointment, visit <http://www.colgate.edu/writingcenter> or call 315-228-6085.

If you have special needs that could influence your course experience and would like accommodations, please let me know by September 12. I will keep these discussions confidential. If you would like to determine if you do need accommodations, contact Lynn Waldman, Director of Academic Support and Disability Services (315-228-7375, or lwaldman@mail.colgate.edu).

Academic Integrity:

You have signed the Colgate University academic honor code, and are expected to uphold it. I will treat evidence of plagiarism very seriously. It is always better to turn in work late, or not at all, than to plagiarize. More information can be found at: <http://www.colgate.edu/offices-and-services/deanofthecollege/academichonorcode>

That being said, there is a difference between cheating and collaboration. You are welcome and encouraged to work with your peers on assignments, as long as your final product represents your own thoughts, writing, etc. If you have questions, particularly about the definition of plagiarism, please ask!

Schedule:

This is pretty much guaranteed to change, but it will give you a general sense of assignment due dates and the topics we will be covering. Dates for the exams will remain the same. An updated version of the schedule, including assignments and readings, will be kept on Moodle. I will also post topics, readings, assignments, and other material to the Moodle site.

Week Number	Date	Main Topic	Due	Readings Due
1	8/28			
2	9/1	Introduction	Google Earth & Tumblr	CVS: 1-19
	9/3			Singer: 38-54; minerals PDF
	9/5	Freshwater		CVS: 381-403
3	9/8		Response 1: population growth	CVS: 390-395; 422-436
	9/10			McPhee: 1-92
	9/12			CVS: 403-411
4	9/15		Response 2: Mississippi River	
	9/17			
	9/19			
5	9/22	Climate Science		
	9/24			
	9/26			
6	9/29			
	10/1	Intro to Geology	Data Analysis 1	
	10/3			
7	10/6	Soils		
	10/8		Response 3: BBC climate challenge	
	10/10			
8	10/13	no class		
	10/15	Energy		
	10/17	Mid-term Exam		
9	10/20			
	10/22			
	10/24			
10	10/27			
	10/29			
	10/31		Data Analysis 2	
11	11/3	Fertilizers		

	11/5			
	11/7	Building & industrial Materials	Data Analysis 3	
12	11/10			
	11/12			
	11/14	Metals		
13	11/17		Data Analysis 4	
	11/19			
	11/21			
14	11/24	no class		
	11/26	no class		
	11/28	no class		
15	12/1		Response 4	
	12/3			
	12/5			
16	12/8			
	12/10		Data Analysis 5	
	12/12			
		Final Exam		