

315/515-2

Global History of Science and Technology:
The Human Age

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Location/Time:
Tuesday & Thursday
3:35-4:50
CCC 231



Course Description:

This course explores how human societies from the advent of the Stone Age to the present have utilized science and technology to control their environment. Recently, some scientists have claimed that, through its tools, human society has so altered the physical environment that we have now entered a new geological era; they call this era the Anthropocene, or the "Human Age." Their argument is relatively straightforward: with the onset of anthropogenic global climate change humans have begun to alter the geophysical systems of the planet, which we can observe being etched into the geological record. If human society has now become a geological force, they argue, perhaps we ought to recognize this new geological reality and call it what it is: a human geological age.

This course approaches this question of the Anthropocene from the perspective of history. Our primary question is: how have human societies (through their science and technology) shaped and been shaped by their environment over the course of global human history? We will explore this question first by exploring the rise of human tool use; then we move on to questions about the role of science, technology, and environment in the era of colonial expansion; and we end with what some refer to as the "Great Acceleration," or rapid economic expansion after World War II that has led to a dramatic rise in Co2 emissions and global climate

change. Our primary method through which to investigate the notion of the Human Age is through seminar-like discussions and lectures.

Learning Objectives:

Enduring Understandings:

Human society is an inseparable part of the environment,

Science and technology shape not only what we know about the environment, but also how we control it to suit society's ends.

Course Objectives:

Any engaged student who works assiduously in this course will be able to:

- 1) Describe and analyze scientific theories about the human origins of global climate change.
- 2) Analyze how the environment has shaped and been shaped by scientific and technological development through time.
- 3) Analyze how human society has impacted and been impacted by environmental, technological, and scientific change through time.
- 4) Appraise the environmental and social impact of science and technological development and explain why this is important to contemporary civil society.

Required Reading:

Texts:

Joshua Howe: *Behind the Curve: Science and the Politics of Global Warming*, The University of Washington Press, 2014.

Aaron Sachs: *The Humboldt Current: Nineteenth-Century Exploration and the Roots of American Environmentalism*, Penguin, 2006.

Kurt Vonnegut: *Cat's Cradle*, 1963.

Brett Walker: *Toxic Archipelago: A History of Industrial Disease in Japan*, 2010. This book is available for download from the UWSP Library website.

You must bring these books to class on the days that we discuss them.

Desire2Learn (D2L): In addition to the books above, you will also be required read articles and bring them to class to discuss. These will be available on D2L. They are noted in the schedule below with an asterisk (*).

You have one of two reading choices for the short readings in this course: You can 1) print out the articles in hard copy, or 2) simply read the electronic versions of the articles. If you choose option number 2 there are caveats. Caveat number 1: the only electronic devices permissible for the readings are laptops or ipad-type readers. No cell phones! I am strict of this. Caveat 2: you must bring your device with you on the day that we discuss those readings. This is the price you pay for going electronic. Understand? Good.

Assignments:

Participation: This course is reading-heavy and requires serious analytical thinking. Consequently, it is imperative that you attend class and actively engage in discussions, lecture, and group work. For each class, you will be required to complete all the reading and be prepared to discuss them with the whole class and with your peers.

D2L Discussion Posts: In addition to your active participation during class-time discussion, you are also required to periodically craft an analytical response to the readings on D2L. These responses should be a paragraph or so in length and analyze the readings from a critical perspective. Think of these responses as your first attempt to gather your thoughts about the readings before we begin discussion in class. That said, do not simply post your random and/or unreflective thoughts. I want serious engagement in your responses that will get your peers (as well as you) thinking. You will have a limited window of opportunity to submit your responses on D2L as **the discussion topics will be closed at noon** on the day we are to discuss those readings in class. You will thus need to plan your reading time well ahead of class. If you do not get your response in, you will not receive credit.

In addition to submitting your initial thoughts, you will also be required to write a short response to one of your peers' posts on D2L, which you will be able to access after you have written your own response.

Below I have provided a rubric that will give you a sense of how your responses (and participation in class) will be graded.

Book Reviews: You are required to write five 2-3 page reviews of the required books (we discuss Sach's *The Humboldt Current* twice, thus two reviews for one book). These responses are due in class on the day we discuss those books. I will provide a more detailed guide on how to write these reviews.

Paper: You are also required to write a 7-8 page "literature review" on a topic related to the "Anthropocene." (We will discuss this idea more fully in the next class.) The paper will have

two parts: First, it will review the existing literature on your topic. Second, it will contain an analysis of how your topic (and what has been written about it) fits into the themes we have been discussing in class. Possible topics could focus on specific environmental/science problems like global climate change, pesticide poisoning, or ocean acidification. Or, the focus could be on certain types of environments like threatened wetlands, expanding deserts and desertification, forests, etc. It could also be place-based like Lake Superior pollution, or organic agriculture in central Wisconsin. I will provide a document with guidelines later in the semester. Note: your paper requires that you write a topic description and annotated bibliography, which, as you will see from the schedule below, are due at various dates during the semester.

Presentation:

You will present the findings in your paper to your peers in the last few weeks of class. Your paper will be due the day that you present.

Take-Home Final: There will be a cumulative final for this course. It will be comprised mostly of ID's and short essay(s). You will turn this in at our scheduled final time and place.

Note: You must complete all of the book reviews, the paper, the presentation, and final for this class or you will receive an "incomplete" or fail this class.

Note 2: Late assignments will be docked a third of a grade for every day late.

Rubric for Discussion Participation in Class and D2L

	Excellent "A"	Proficient "B"	Developing "C"	Unacceptable ">C"
Frequency	Student frequently initiates conversation more than once in class.	Student initiates contribution once in each class.	Student contributes only every few classes.	Student does not initiate contribute and requires professor to solicit input.
Quality	Comments are always insightful, constructive, and demonstrate clear engagement with class material. Always employs appropriate terminology.	Comments are mostly insightful, constructive, and demonstrate engagement with class material. Frequently employs appropriate terminology.	Comments are sometimes constructive with signs of engagement and insight. Terminology and comments not always relevant to discussion.	Comments are uninformative, lacking appropriate terminology, and demonstrate lack of engagement with class material.
Listening	Student listens attentively and builds upon remarks of others.	Student mostly attentive and usually builds upon remarks of others.	Student is often inattentive and requires reminders to stay focused. Student sometimes disruptive.	Student does not listen to others, does not pay attention, and/or detracts from the discussion.

Grades:

Class Participation: 5%
 D2L Discussion Posts: 15%
 Book Responses: 20%
 Paper: 25%
 Topic and Annotated Bibliography: 10%
 Presentation: 5%
 Final: 20%

Grading Scale (percentage):

A	93-100	B-	80-82	D+	67-69
A-	90-92	C+	77-79	D	60-66
B+	87-89	C	73-76	F	59 and below
B	83-86	C-	70-72		

Other Stuff:

Attendance: I will record attendance. Students who miss 3 classes will be docked a 1/3 of a grade from their final grade. Students who miss 4-5, 2/3rds of a grade, 6+ a full grade (and so on). For example, if you were to earn a B in this class, but missed 3 classes, your final grade would be a B-. Absences will be unexcused except in extraordinary circumstances, which will require a note from an authority explaining the absence. If you miss an assignment for a class in which you have an excused absence, you must make every effort to make up any missed assignments within a reasonable amount of time. I will not accept missed assignments for excused absences weeks after their due date.

Related to absences: I find it incredibly rude for students to leave in the middle of class. If, for some legitimate reason, you need to leave class early, I would appreciate the common courtesy of letting me know before class begins. Students who leave class without permission will be docked attendance for that class.

Late Work: Stuff happens. Sometimes life takes priority over schoolwork. If something comes up and you need to miss a class or cannot finish an assignment on time, let me know immediately. I do not always grant extensions on assignments, but I do try to be flexible. It is imperative, therefore, that when incidents arise you do your diligent best to keep me informed.

Electronics: All electronics must be turned off during class, unless instructed by me to use them. These include cell phones, laptops, and tablets. In some cases, laptop use may be permitted if the student has an accommodation approved by the Disability Services Office (see below).

Plagiarism: For information on plagiarism, consult <http://www.uwsp.edu/centers/rights>. See Chapter 14, ***Student Academic Standards and Disciplinary Procedures***, pages 5 -10, for the disciplinary possibilities if you are caught cheating. I will vigorously pursue all incidents of plagiarism. Also I use turnitin.com for the essays.

Equal Educational Opportunities: If you have a learning or physical challenge which requires classroom accommodation, please contact the UWSP Disability and Assistive Technology Center (6th Floor of the Learning Resources Center) with your documentation as early as possible in the semester. They will then notify me, in a confidential memo, of the accommodations that will facilitate your success in the course. Voice: (715) 346-3365, TTY: (715) 346-3362, <http://www.uwsp.edu/special/disability/studentinfo.htm>.

Writing/Reading Help: This is a reading and writing intensive course. If you need help you can visit the Tutoring and Learning Center in the basement of the Library. They are there to help you with papers etc. This is totally free! Their webpage is <http://www.uwsp.edu/tlc/Pages/writingReadingTutorials.aspx>. You can also call them to make an appointment at (715) 346-3568.

Notice on Copyright of Course Material: As the instructor, I retain all copyright on lectures, slides, assignments, and other course materials. I do not allow anybody to photograph, film, or otherwise record lectures without my express permission. I do not allow anybody to distribute course materials or otherwise send audio or visual recordings of lectures to people not currently enrolled in this class without my express permission. Posting course material that I have created onto course-sharing websites directly violates my copyright on my academic materials.

***Note: I reserve the right to alter this syllabus for any reason.**

Schedule:

Week	Topic	Readings	Assignments
1	Course Introduction		
	The Anthropocene Idea	* Steffan, Crutzen, and McNeill, "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?" * Syvitski, "Anthropocene: An Epoch of Our Own Making." * Vitousek, et al., "Human Domination of Earth's Ecosystems."	D2L Discussion Response
2	Human Evolution	* Ambrose, "Paleolithic Technology and Human Evolution." * Brown, et al., "Fire as an Engineering Tool of Humans." * Krech, "Pleistocene Extinctions." * MacGregor, "Olduvai Stone Chopping Tool" & "Olduvai Handaxe."	D2L Discussion Response
	Agricultural Revolution	* Christian, "Intensification and the Origins of Agriculture." * Diamond, "The Worst Mistake in the History of the Human Race."	
3	Ancient Irrigation Societies	* Christian, "From Power over Nature to Power over People."	D2L Discussion Response
	Writing, Numbers, Philosophy	* Seife, "Nothing Doing: The Origin of Zero."	Paper: Topic Description Due
4	Columbian Exchange	* Mann, "1491." * Carney, "African Rice in the Columbian Exchange."	D2L Discussion Response
	Colonization and Early-Modern Market Systems	* Richards, "Sugar and Cattle in Portuguese Brazil."	D2L Discussion Response
5	Scientific Revolution	* Merchant, "Domination over Nature."	
	Humboldtian Science I	Sachs, <i>The Humboldt Current</i>, beginning through Part II.	Reading Response #1
6	Humboldtian Science II	Sachs, <i>The Humboldt Current</i>, Part III to end.	Reading Response # 2
	Industrialization and Power	* Marks, "The Industrial Revolution and Its Consequences."	D2L Discussion Response

7	Modernity	* Moon, "Take-Off, or Self-Sufficiency." * Leslie, "Running Dry."	
	Industrialization and Toxicity	Walker, <i>The Toxic Archipelago</i>, entire.	Reading Response # 3
8	Conservation and Imperialism	* Dowie, "Natural Capital and TEK." * "Biopiracy: A New Threat to Indigenous Rights and Culture in Mexico." * Beinart, "Imperial Scientists, Ecology, and Conservation."	D2L Discussion Response
	Environmental Justice and Environmentalism for the Poor	* Guha, "Radical American Environmentalism and Wilderness Preservation: A Third World Critique." * Gordon, "Intro" to <i>Tarzan was an Ecotourist</i> .	Paper: Annotated Bibliography Due
Spring Break			
9	(Un)natural Disasters	* Mikhail, "Ottoman Iceland: A Climate History." * Davis, "Victoria's Ghosts."	D2L Discussion Response
	No class! Jerry to Chicago!		
10	Our World: Air	Howe, <i>Behind the Curve</i>, entire. * Selections from the IPCC report.	Reading Response # 4
	Our World: Land		
11	Our World: People	* Davis, "Planet of Slums." * Hardin, "Lifeboat Ethics."	D2L Discussion Response
	Our World: Sea	Vonnegut, <i>Cat's Cradle</i>, entire.	Reading Response # 5
12	Our World: Planet	* Anker, "The Ecological Colonization of Space."	
	Fixing Our World	* Fleming, "The Climate Engineers." * Klein, "Capitalism vs. the Planet."	D2L Discussion Response
13	Film		
	Film & Discussion		
14	Presentations		
	Presentations		
15	Presentations		
	Wrap Up and Handout of Take-Home Final		
Take-Home Final due during our final time and place: Tuesday, May 16 5-7pm CCC 231.			