Philosophy 480, History 480/680

Science, Technology, and Society (General Capstone Course)

Theme: Global Sustainability, with a focus on climate modeling science and related political policy and ethical issues

Instructor: Prof. Thomas Nickles, 108F EJCH (Edmund J. Cain Hall).
Email: nickles@unr.edu. Please use WebCampus email for class business if possible since security screens on regular email often block mail from unfamiliar sources.
Probable office hours: 2 - 3:00 p.m., MW, and by appointment.

Overview and themes. This is a general capstone course in UNR’s Core Curriculum. Our topic will be global sustainability. ‘Global sustainability’ is an extremely broad, interdisciplinary umbrella term that encompasses many specific topics. As a goal, global sustainability includes the ideas that we should utilize materials and processes in a manner that is renewable indefinitely, that the basic conditions of productive life on earth should not be exhausted, and that, at a minimum, we should leave the biosphere no worse than we found it. The problem of global sustainability is how to get there from here, from where we are now. (Of course, not everyone is convinced that we have a problem, either because we are already supposedly sustainable, because we should not or cannot rationally care about really long-term sustainability, or because we will always find new resources as we use up or replace the old ones.) Stated in terms of the old Greek and native American elements, the subproblems are how to utilize earth, water, air, and fire so that future generations of humans and other organisms will enjoy at least something like the life opportunities that we possess—and preferably better opportunities in terms of global justice and the resulting (?) reduction in global tensions.

This semester we shall emphasize issues concerning global climate change, including how scientists model complex phenomena and, given the uncertainties, which policies it is scientifically and morally wise to adopt. One important moral, political, and economic issue is what (if anything) we owe to those regions of the world most damaged if the model projections turn out to be correct. An overarching issue is whether or not all of our problems and opportunities are technical ones, to be solved by a technoscientific elite, versus a more democratic process. Linking all of these topics is that of economic and social accounting systems, including risk analysis. As for the history and future of capitalism, we shall begin the course by considering whether we might be experiencing the beginning of another major economic transformation—toward something closer to meeting “the triple bottom line” (TBL or 3BL) of “people, planet, and profit.”

Naturally, we cannot even begin to cover everything. I invite you (and expect you!) to work on specific issues of interest to you that are directly related to the issues of this course, e.g., solar energy, hydrogen fuel cells, fracking, water rights in the west, forest management, industrial or domestic efficiency, the supposedly green revolution in agriculture, possible changes in ocean currents, economic and humanitarian aid to Africa, accounting problems (e.g., the real cost of our gasoline economy, problems of assessing the value of “nature,” strengths and weaknesses of cost-benefit analysis), public attitudes toward risk—just to name a few topic areas. No matter what your major or minor, it will connect with some of our course problems. And no matter what your major or minor, some topics in our course will be new to you.
Prerequisite. CH 201, ENG 102, and junior or senior standing.

Required Texts (all paperbacks, some available free online)

  **Note: This book is available free online through the UNR Knowledge Center Website.**
- Kerry Emanuel. *What We Know About Climate Change*. MIT Press.
- Andrew Dessler and Edward Parson, *The Science and Politics of Global Climate Change*. Available free online thru the UNR Knowledge Center website, also in hardcopy from Cambridge University Press (e.g., quickly from Amazon.com or Barnes & Noble).

Additional reading. There will be numerous handouts and downloaded articles, some required reading, some optional, on our class site on WebCampus. We’ll skim some chapters of our books.


Brief description of CO9: Students will be able to connect science and technology to real-world problems by explaining how science relates to problems of societal concern; be able to distinguish between sound and unsound interpretations of scientific information; employ cogent reasoning methods in their own examinations of problems and issues; and understand the applications of science and technology in societal context.

Brief description of CO13: Students will be able to integrate and synthesize Core knowledge, enabling them to analyze open-ended problems or complex issues.

Student Learning Outcomes. As a result of taking this course, students will be able to:

- State a thesis about a societal issue arising from science and/or technology, and provide evidence and philosophical argument (including replies to counter-arguments) in its defense.
- Explain a scientific development or technological innovation in lay terms, and analyze different (and perhaps incompatible) cultural implications or policy responses.
- Distinguish between sound and unsound interpretations of a scientific theory, or of the evidence marshaled for or against a scientific hypothesis, in a sociopolitical setting.
- Show how philosophers’ tools (argument, conceptual analysis, etc.) are able to clarify what is at stake in a culturally significant scientific development or technological innovation

Course Requirements. There are 1000 total points in the course. See our WebCampus / Blackboard Learning course calendar for specific assignments and deadlines.

- One short writing assignment, 2 pages, double-spaced, 50 points, thus 5% of your course grade.
- Two short reading quizzes (true-false, multiple choice, fill-in-the-blank), 50 points each.
- Project, including a brief (10-minute) oral presentation to the class of your project-in-progress and 5-10-minute discussion (250 points, 25%). (The oral presentation will not be explicitly graded, but failure to give one will dock your score 50 points.) This can be a joint project with other class members, working on different aspects of the same problem, issue, or
Please note that you will submit all written work as a WebCampus email attachment, using Rich Text Format (.rtf) or Microsoft Word format (.doc or .docx). Use one-inch margins and 12-point, Times Roman font or similar. To attach a file to WebCampus email that you are writing, click on the paperclip icon, then the “Browse” button. Select the file containing your paper. Be sure that the attachment then registers before clicking on “Send.” You should always copy yourself to the message so that you can check to make sure that the attachment goes through. Do this by adding your own Blackboard email name to the address line. Late work will lose about 1/3 of a letter grade per day).

The above percentages are approximate. They can be modulated as much as one full grade by your overall improvement (or the reverse!).

**Graduate Standing.** Anyone taking the course for graduate credit will be assigned additional reading and writing, held to a higher standard, and expected to play a constructive role in class discussions.

**Grading Policy.** I use a plus-and-minus grading scale in which 90-100% is the A range, with the top and bottom three points in each range being plus or minus, respectively. Similarly, 80-89% is the B range, 70-79% is the C range, and 60-69% is the D range. Remember that there is a large difference between an honest failure and the zero points resulting from failure to turn in work! I also use the plus-and-minus grading scale. I have tried to devise a fair grading scheme in which everyone knows, from the very beginning, what will count for how much. Accordingly, there will be no “extra credit” given to individuals, no special consideration to people in trouble toward the end of the term. Special treatment is not fair to the other students who have been working conscientiously all along. In any case, your time is better spent studying the basic material of the course in preparation for the papers and exams than on throwing together an extra-credit paper. Students who have frequent, unexcused absences are not full participants in the course and will receive a lowered grade.

**Class Format:*** Informal lecture-discussion, with emphasis on discussion. Feel free to ask questions or to make comments at any time. I have infinite patience with honest questions, even if they be naïve. I do not have patience with people who miss class for no good reason and then ask about things we have already discussed or who come and expect me to run through the missed class for them personally during an office visit. At various points we shall invite visiting speakers to our classes.

Please note that this is a discussion-based course. Although some of our materials are online, this is not an online or distance-learning course. All studies show that engaging regularly in discussion (even among advanced researchers) improves performance. Frequently an attendance sign-in sheet will be passed around during class meetings. After the first week of the semester, each unexcused absence subtracts 10 points from your course point total. Thus missing ten classes automatically reduces your course grade by one full grade.

**Controversial material.** Some of the ideas that we shall encounter are controversial. You need not agree with them, but you are expected to understand them and to be able to discuss them in an intelligent and civil manner. In fact, I encourage you to develop and defend your own position on the
issues, which may involve disagreement with our texts and with me! After all, the course will provide tools for critical thinking, so you ought to use them. Whether you agree or disagree, your position should not be dogmatic but one responsive to evidence and arguments. Few things can be proved absolutely, but you should be able to make your position interesting enough to be worth discussing. Remember: While you have a (political/legal) right to your opinion, that does not make your opinion right! Just because you hold it cuts no ice with anyone else, unless you can back it up with evidence and arguments. To get leverage, you need evidence, presented in a coherent fashion!

**WebCampus Course.** This course will make heavy use of UNR’s WebCampus / Blackboard Learning system. All take-home written work must be submitted by email. If you have trouble logging on, contact me ASAP. If you are having computer problems, consult the Computer Help Desk. It’s located on the main floor of the Knowledge Center, to the right as you enter the main atrium. Or contact the people there at 682-5000 (just 2-5000 from campus phones).

**Cheating.** UNR has a strong policy against cheating, including plagiarism. **Plagiarism** is using someone else’s work (a book, article, broadcast, website, image, a friend, etc.) but putting it forward as your own—or helping another person to do this. Plagiarism amounts to intellectual theft—stealing the ideas of others. In an academic setting, this is as serious as stealing physical property. Your paraphrases must be credited to their source as well. *Note that it is still plagiarism when you change a few words or even when you completely restate someone else’s ideas in your own words. Whenever you use an outside source, you must cite it.* Give proper citations and you will be fine in this regard. Just remember: “Plagiarism is short-cited.”

**Disabilities.** If you have a disability for which you will need to request accommodation, please contact me or the Disability Resource Center (Thompson Building, Suite 101, phone 784-6000) as soon as necessary to make for appropriate arrangements.

**PLEASE CONTACT ME ABOUT ANY DIFFICULTIES THAT YOU ARE HAVING.**

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**First Reading Assignment**

Both articles can also be found on the Web at [www.garretthardinsociety.org](http://www.garretthardinsociety.org).
First Writing Assignment

Write a paragraph about yourself and your interests and send it to me by WebCampus email by Friday. Include information about your class standing (junior, senior, etc.), your major and minor, where you are from, what you are interested in (including your spare time). Which class topics will probably interest you the most?

Garrett Hardin  Elinor Ostrom (2009 Nobel Prize)  Peter Singer
Paul Hawken  Amory Lovins  L. Hunter Lovins

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Tentative Reading and Assignment Schedule

There will be handouts and other items not listed here, including additional reading for any graduate students. We shall not “go over” everything in the readings in class lectures and discussion. The readings will sometimes serve as background material upon which we can draw.

Week 1 (August 27, 29, 31). The tragedy of the commons I.
Friday, October 31, is the final day to register for classes, to drop classes with a 100% refund, and to add a class without the instructor’s permission.


Week 2 (Sept. 5, 7). The tragedy of the commons II.
Monday, September 3, is Labor Day, a holiday. No class!
Thursday, September 6, is the final day to add a class with instructor’s permission.
Start thinking about a problem or topic for your project.

2. Peter Singer, “One Atmosphere,” in Gardiner et al., Climate Ethics, chap. 10, pp. 181-199. (This book is free online via the KC and also available for purchase.)

**Week 3 (Sept. 10, 12, 14). Are we entering a green revolution? Can natural capitalism work?**


**Week 4 (Sept. 17, 19, 21). Accounting systems, efficiency.**

*Short paper due this week. See the course calendar on WebCampus for details.*


**Week 5 (Sept. 24, 26, 28). Climate change basics & scientific modeling.**

*Short reading quiz on Natural Capitalism this week. Watch the course calendar for details.*

2. *What Do We Know about Climate Change*. Read all 85 pages of this short book over two weeks.

**Week 6 (October 1, 3, 5). Climate change policy & problems I.**

1. Bjorn Lomborg video & class exercise: Where would you spend $50. billion?

**Week 7 (Oct. 8, 10, 12). Climate change policy & problems II.**

*The midterm exam will occur sometime this week or else Wednesday, October 17. See the course calendar on WebCampus for details.*

1. *The Science and Politics of Global Climate Change*, chaps. 1 and 2, pp. 1-45. “Global Climate Change: A New Type of Environmental Problem” and “Science, Politics, and Science in Politics.” Available free online thru the Knowledge Center website. Note that this book has a glossary of key terms at the end.

**Week 8 (Oct. 15, 17, 19). Climate change policy & problems III.**


**Week 9 (Oct. 22, 24, 26). Climate change ethics.**

*Thursday, October 25, is the last day to drop classes with a W. Friday, October 26, is Nevada Day. No class!*

3. Handout on types of ethical systems.  Put much earlier, near beginning.

**Week 10 (Oct. 29, 31, Nov. 2).  Climate policy and risk I.**

1. Handouts on risk analysis and future discounting.
2. YouTube video applying Pascal’s Wager, for class discussion & critique.

**Week 11 (Nov. 5, 7, 9).  Climate change ethics & policy.**


**Week 12 (Nov. 14, 16).  Scenario planning for the future I.**

*Monday, November 12, is Veteran’s Day. No class!*  
2. Videos on futuristic projects now underway at Intel & elsewhere.

**Week 13 (Nov. 19, 21).  Scenario planning for the future II.**

*Thursday and Friday, November 22 and 23, are Thanksgiving vacation.*


**Week 14 (Nov. 26, 28, 30).  Scenario planning for the future III.**


**Week 15 (Dec. 3, 5, 7).  The future of production: Capitalism, the creative commons, and competitive advantage.**

1. Yochai Benkler video.

**Week 16 (December 10).  Summing up.**

*Monday, December 10, is the last regular day of class. Project paper due.*  
*Wednesday, December 12, is Prep Day / Dead Day. No class.*  

The final exam for Section 1 (meeting at 12 noon on MWF) is Friday, December 14, from 12:30 – 2:30 p.m., in our regular classroom.  
The final exam for Section 2 (meeting at 1:00 p.m. on MWF) is Monday, December 17, 10:15 a.m. – 12: 15 p.m., in our regular classroom.
20 years later and all of these things fit in your pocket.