

## Fall 2004 course: Philosophy 190, "Science, Ethics, and the Environment"

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Department of Philosophy and  
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Office: 211 Malloy

Class Time: 3:30-4:45 Tues/Thursday  
Office hours: T/W/Th pm; sign  
appointment sheet on door, 211 Malloy  
Classroom: 201 Coleman Morse  
Course is limited to 20 students;  
it meets the ND philosophy requirement

### WHAT SHOULD CONCERN YOU

- Cancer is the leading cause of death for US children, ages 2-16 (US NCI).
- 30% of all pesticides, made in the US, are banned from use in the US but are shipped abroad where they kill 40,000 people annually in the developing world (WHO).
- 80% of all US toxic dumps and waste incinerators are in Black/Latino/ Native-American neighbors, and air pollution in these minority neighborhoods = 200-600 % of that in white (US EPA).
- 30,000 annual, preventable, US deaths are from power-industry particulates and fossil fuels (US EPA).
- 90,000 of the annual, US air-pollution deaths (every 10 micrograms of particulates = a 5% death increase) are preventable (US EPA).
- 400,000 annual, preventable, global deaths are from burning fossil fuels; signing the Kyoto Treaty would prevent many of these deaths in the future (WHO).
- 228,000 annual, preventable, US deaths are occupationally induced, mainly from workplace cancer (US PHS).
- 540,000 annual US cancer deaths are "environmentally induced and theoretically preventable" (US OTA).

### 3 Parts of Course: Methods of Analysis, Background, Ethics

1. **METHODS OF ANALYSIS:** How is the science, logic, and ethics for assessing these problems often corrupted? How can one recognize logical fallacies in environmental evaluations and use the logical criteria (assumptions, consistency, completeness, coherence, consequences) to analyze environmental problems?
2. **BACKGROUND:** What are some of the current environmental and public-health problems? Why are they important?
3. **ETHICS:** How can ethical analysis help solve these scientific and environmental problems?

<b>Course Texts</b>	Beder, <u>Global Spin</u> , 2002, paperback.	First 3 books are available from Amazon.com for under \$25.
	Krimsky, 2003, <u>Science in the Private Interest</u>	Until 2005, S-F book is available from Decio Copy Center (about \$25)
	Lewis, <u>Technological Risk</u> , 1990, paperback	
	Shrader-Frechette, 2005, <u>Taking Action</u>	After 2005, S-F book is available from Oxford University Press

### COURSE GOALS

- TO INTRODUCE NOTRE DAME STUDENTS TO CLASSIC SCIENTIFIC AND ETHICAL TEXTS ON ENVIRONMENTAL PROBLEMS
- TO TEACH STUDENTS HOW TO DO SCIENTIFIC, LOGICAL, AND ETHICAL ANALYSIS OF ENVIRONMENTAL PROBLEMS, ESPECIALLY VIA ENVIRONMENTAL IMPACT ASSESSMENT
- TO INVESTIGATE AND RESPOND TO THE GLOBAL, NATIONAL, AND LOCAL INFORMATIONAL AND EDUCATIONAL NEEDS OF POOR PEOPLE AND MINORITIES, ESPECIALLY CHILDREN, WHO ARE THREATENED BY ENVIRONMENTALLY INDUCED ILLNESS AND DEATH
- TO OFFER STUDENTS OPPORTUNITIES FOR PROJECT-BASED SERVICE WORK ASSESSING ENVIRONMENTAL HEALTH NEEDS, ESPECIALLY IN POOR AND MINORITY COMMUNITIES IN THE US.
- TO PARTNER WITH THE CHILDREN'S HEALTH AND ENVIRONMENTAL-JUSTICE PROGRAMS OF THE US NATIONAL CONFERENCE OF CATHOLIC BISHOPS
- TO UNDERSTAND ENVIRONMENTAL JUSTICE AND CHILDREN'S HEALTH NEEDS NEAR NOTRE DAME, PARTICULARLY IN SOUTH BEND, GARY, AND EAST CHICAGO

### COURSE FORMAT

The course will be an interactive seminar consisting of 15-20-minute lectures by professor, followed by about 60 minutes of interaction/presentation guided by professor. No late papers/assignments will be accepted, at all, except in the case of a family death or a student illness (Doctor's note required).

**Deadlines:** Project Outline P1: at beginning of class, last class in September  
Project Paper P2: at beginning of class, last class in November

## Course

- Requirements:**
1. 3 one-page papers: 1 analysis (A), 1 background (B), 1 ethics (E)
  2. a two-page project outline P1
  3. a 5-10 page project report P2, based on (2)
  4. in-class analysis at every class
  5. pop quizzes on reading for the day; watching a video (and turning in video sheets for "Trading Secrets"); and going to 1 Roemer and 1 Meslin lecture.

## Basis for Course Grade:

There will be no tests, but course grade will be determined by weighting above 5 items equally. If students wish, they can do an extra-credit project by doing a 5-page analysis-type paper (A) on one of the books listed at end of syllabus.

Students are encouraged to develop their own arguments, and especially, to develop arguments that differ from those of the professor. Students will be graded only on the logic they employ, the quality of their argument methods, and the factual correctness of factual claims, not on which particular opinion, on any topic, for which they argue.

No late papers/assignments will be accepted, at all, except in the case of a family death or a student illness (Doctor's note required).

- Main Course Work:** Students will choose a science-related or environment-related project (for papers P1 and P2) on which to work independently. In the past, many ND students have analyzed draft environmental impact statements (2500 are done each year in the US), particularly for poor and minority communities. Others have assessed ethical issues underlying current or proposed scientific or environmental legislation, proposals and policies.

## Format for Analysis Paper A

Use Course Requirements, above, and points/model below to write your own paper A.

- (A) Give one-sentence quotation + one-sentence argument, + one sentence explaining why flaw is damaging to the author's position.
- (B) Repeat (A) 4 times, so that you have 15 sentences.
- (C) Use only 1 page.
- (D) Employ same format as given in KS-F sample critique of Lewis on next page.
- (E) Turn in 2 copies for professor and 1 copy for each class member.)

## Format for Analysis Paper A

[last name, first name]

Philosophy 190-A

[date]

1. "Ionizing radiation....may or may not be bad in small doses—no one knows" (Lewis, ch. 15, p. 218).

Lewis' claim is incomplete because he admits, on p. 222, that the National Research Council (National Academy of Sciences) says that the probability of radiation-induced cancer is a function of the amount of radiation received.

Lewis' incompleteness is damaging to his argument because the incompleteness suggests he may be biased in underestimating the dangers associated with radiation.

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1. [ALTERNATIVE ANALYSIS TO ABOVE] "Ionizing radiation....may or may not be bad in small doses—no one knows" (Lewis, ch. 15, p. 218).

Lewis' claim could lead to the consequence that people were careless about unnecessary radiation risk because he says "no one knows" if small doses are dangerous.

This consequence is damaging to Lewis' argument because people ought not ignore even potential risks if they are easily avoidable, e.g., by wearing a lead apron for x-rays.

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2. Medical x-rays are examples of voluntary exposure to radiation" (Lewis, ch. 15, p. 219).

Lewis assumes that when people receive x-rays, their exposure to radiation is voluntary.

This assumption is doubtful because doctors, insurers, or employers often require people to receive x-rays, and patients often do not understand the risks involved and hence cannot consent to them.

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3. "Nuclear waste must be disposed of carefully" (Lewis, ch. 15, p. 220).

Lewis' claim above is inconsistent because he also claims (on pp. 245-246) that "high-level waste....risk....turns out to be ridiculously low....High-level nuclear waste disposal is a non-risk."

Lewis' inconsistency is damaging to his argument because one need not be "careful" about a risk that is "ridiculously low" or a "non-risk"-- emotive language that suggests Lewis' bias.

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4. "The vast majority of all these radiation sources deliver[s] extremely small doses, with minimal if any heal the effects, even though fear of even trivial doses of radiation is common"(Lewis,ch.15,p.220).

Lewis assumes that it is not reasonable to fear trivial doses of radiation.

This assumption is doubtful because Lewis admits ionizing radiation "may be bad in small doses—no one knows" (Lewis, ch. 15, p. 218), and it is reasonable to fear small/unneeded doses of things with cumulative effects.

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5. "The maximum permitted exposure for workers in nuclear facilities is 5,000 mr per year, and for the general public 500. We don't know if this much radiation does any harm at all"(Lewis,ch.15,p. 220).

Lewis' claim is incoherent because (1) the referent of "this much radiation" could be 5,000 or 500 mr and (2) he says (p. 222) "the most authoritative estimates" of radiation risk show that the risk is a function of dose.

Lewis' incoherence is damaging to his argument both because (1) his language makes his argument unclear and (2) he appears to be biased in underestimating radiation risks.

[Use no fonts smaller than 12 point; no sentences longer than 3 lines; no quotes twice.]

### Format for Background Paper B

See Course Requirements, earlier, and use directions below to write your paper B.

[last name, first name]

Philosophy 190-B

[date]

- (A) Give your own succinct, clear, complete, thesis-sentence or topic sentence for your paper + bibliographic material in parentheses.
- (B) Give 5-8 precise, factual, clear sentences summarizing the material; use parenthetical page citations.
- (C) Give 3 surprising factual sentences (e.g. statistics) that you learned.
- (D) Give 3 precise, ethical sentences stating why the material is important, from an ethical point of view. Use parenthetical page citations.
- (E) You should have only 12-15 sentences.
- (F) Use only 1 page.
- (G) Double space between items A, B, C, & D.
- (H) (Turn in 2 copies for professor and 1 copy for each class member.)

### Format for Ethics Paper E

See Course Requirements earlier; use either model below to write your ethics paper E.

#### E Model 1 - Positive

[last name, first name]

Philosophy 190-E1

[date]

- Q1: "Locke says the eternal law of nature, directed at human preservation, limits property rights...so that all people in all generations have...access to land, genes, and the benefits...." (TA, 3-11).
- C1: Societal consistency also seems to support argument Q1 because the strongest property rights, to one's own person, are restricted for the sake of community welfare, just as Locke and S-F say should be done, as when society incarcerates dangerous people in order to protect society.
- A1: C1 promotes Q1 because, although societal opinions never establish ethical conclusions, well-substantiated societal opinions, that reasonable people support, help establish them, precisely because they are well substantiated and supported by reasonable people.
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- Q2: " 'The law of nature...willeth the peace and preservation of all mankind'...This law governs, for example, the distribution of common properties" (TA, 3-9).
- C2: Locke's/S-F's assumption, that there is a natural law directed at preservation, seems correct because Thomas Aquinas has defended natural law on the grounds that, if humans have a particular nature, then behavior that follows the "laws" of that nature is necessary to help make humans fulfilled, sane, happy, and good.
- A2: These additional grounds for the assumption support the S-F argument because all those, who claims religious grounds for supporting natural law, as defined by Thomas Aquinas, have additional reasons for supporting S-F account of Locke.
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- Q3: "Through implicit consent to the use of money, Locke said people 'have agreed to disproportionate and unequal Possession of the Earth'" (TA, 3-6).

C3: S-F's arguments for equal opportunity to have property may have coherence with, and clarify, the views of early people because they may have used money as a convenience, necessary to exchange a wide variety of goods in many places; thus they may have consented merely to a convenience, not any particular distribution of goods.

A3. C3 supports the S-F argument because it suggests that the original grounds for assenting to unequal opportunity may, in fact, not have existed and that Locke needs a new argument to suggest that people really consented to unequal opportunities.

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Q4: "Human labor cannot merit full property rights to resources like land or genes" (TA, 3-11).

C4: One desirable consequence of supporting Q3, that one cannot have full property rights to what labor has not created, like natural resources, is that the "burden of proof" is on polluters and developers, to show their actions really lead to greater opportunity for all, present and future.

A4: Consequence C4 supports Q4, the S-F view of Locke, because all ethical and political theorists will have to rethink how society fails to live up to Lockean standards they claim to accept.

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Q5: "Locke erroneously believed that land on which humans had not labored was of little value" (TA,3-11).

C6: Because S-F suggests why Locke erred in thinking natural land had little value, she provides a more complete account, of why (1) Locke could be factually wrong in some details, but theoretically correct in his account, and (2) changed factual conditions (expanding population and limited land) call for a reinterpretation of Locke.

A6: The completeness, noted in C6, supports SF's argument because it shows how and why people are misled when they fail to read Locke in the historical and cultural context in which he wrote.

#### E Model 2 - Negative

[last name, first name]

Philosophy 190-E2

[date]

Q1: "Locke's writings also provide grounds for restricting property rights....Locke's first provision requires that 'as much and as good' must remain for others...In a world of expanding population, absolute property rights in land or genes would preclude... equal opportunity" (TA, 3-6, 3-11).

C1: The conclusion above makes the assumption that, because there is never "as much and as good" natural resources, like land, in a finite world with expanding population, therefore people cannot appropriate natural resources, as wholly private property.

A1: Because assumption C1 would be questionable in situations where all people (even future generations) were adequately compensated for losing their "share" of natural resources, Q1 should not deny full private property in natural resources, but make it allowable, given full compensation.

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Q2: "Locke's law of nature and the first proviso require limiting property rights so that all people in all generations have equal opportunity, 'as much and as good' access to land" (TA, 3-11).

C2: Q2 is incomplete, to use Locke's first proviso to deny wholly private property in natural resources, because one also must show that, without full rights, there would be adequate economic incentives for developers to use

existing natural resources to benefit all people.

A2: This incompleteness in damaging to Q2 because S-F must show, not merely that consistent Lockeans reject fully private property in natural resources, but that her interpretation of Locke is practical and workable.

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Q3: "Locke says the root of all evil is humans desires for more than they need....Locke appears to have personal, as well as political, grounds for limiting claims to property rights." (TA, 3-8).

C3: It is incoherent to argue both Q3 and that, if humans do not need full private property rights in natural resources, therefore full private-property rights to natural resources are the source of evil, because the desire for (not merely having) what one does not need, is the root of all evil.

A3: C3 requires Q3 to be modified because, so long as other conditions (e.g., all people have what is necessary for their preservation) are met, having more than what one needs may not cause evil.

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Q4: "Locke says the root of all evil is human's desires for more than they need....He says children should be taught from an early age...to avoid acquisition" (TA, 3-8).

C4: It seems inconsistent for S-F to approvingly quote Locke in Q4 because he seems to reject acquisition in general, not merely desires to acquire more than is needed (TA, 3-8).

A4: This apparent inconsistency in Q4-C4 is damaging to Locke/S-F unless they explain or assume that, while desire for excess is the root of evil, one can train children to avoid such desires by restricting their acquisition.

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Q5: "Locke claims that if labor did not generate property rights, people would starve while waiting to work out property agreements" (TA, 3-7).

C5: One negative consequence, of accepting Q5 and its labor theory of value, is that there could be no full private property rights to anything, to which other people contributed some labor, yet we do recognize full private property right over some things, e.g., books we write.

A5: Consequence C5 is damaging to the S-F argument because it accepts the labor theory of value, yet obviously people accept full private-property rights to things for which their labor, alone, did not create the value.

#### Format for Project Paper P1

See Course Requirements earlier; number items as below, 1-10; and use directions below for P1.

Use sample paper, BioScience format, for doing the 5 argument-objection-response items for section(8) below.

[last name, first name]

Philosophy 190-P1

[date]

- (1) Your dept and your year in school.
- (2) Title of draft EIS/TA/QRA document; website address; full biblio. info.
- (3) 1 succinct, clear, complete, precise sentence on what the problem is.
- (4) 1 succinct, clear, complete sentence on what the document says about the problem.
- (5) 1 succinct, clear, complete sentence on your thesis.

- (6) Relevant deadline and address.
- (7) 1 sentence on why problem is imp.
- (8) 3 argument-objection-response sentences (1 each) on 5 apparent problems in document (15 sentences total)
- (9) 10 current scientific references pro/con the issue (not just from net).
- (10) Make 2 copies for professor and copies for all members of class; 2 pages max.

SAMPLE OF PAGE 1, PROJECT-OUTLINE (P1) PAPER (*BioScience* citation format)

Thesis: The US should not allow more lenient workplace-pollution (than public) standards, because often workers (1) are not fully informed about higher risks; (2) impose the risks on innocent people, such as future generations; (3) receive no compensating wage differential (CWD) for risky jobs; (4) have faulty preferences for riskier work; and (5) ought not be able to trade their health for money.

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Argument 1: The US should not allow more lenient workplace standards, (1) because workers often are not fully informed about higher risks, and industry often covers up the risks (GAO 1999).

Objection 1: Argument 1 is questionable because unions and government regulators can inform workers of the risks, as Congress recently did, in the case of nuclear workers (Congress 1999).

Response 1: Objection 1 is questionable because US union membership is only 14-16 percent (Miller 1999, pp. 57-59), and government often fails in its regulatory capacity (GAO 1999).

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A2: The US should not allow more lenient workplace standards, (2) because often worker mutagenic risk is imposed on innocent people, such as future generations (Shrader-Frechette 2002, ch. 5).

O2: A2 is questionable because someone needs to do the risky work, or else the economy would suffer (Dorman 1996, pp. 26-28).

R2: O2 is questionable because human rights take precedence to economics, and because European nations also do risky work, but with very stringent workplace standards (Newton 1996, pp. 135-149).

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A3: The US should not allow more lenient workplace standards, (3) because often there is no CWD for workers in environmentally risky occupations (Leigh 1995, pp. 3-7, 215).

O3: A3 is questionable because many economists say there is a compensating wage differential, although it varies from occupation to occupation (Viscusi et al. 2000).

R3: O3 is questionable because although there is an average CWD, disaggregating CWD data shows it exists only for unionized, college-educated, or male workers (Shrader-Frechette 2002, Ch. 7).

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A4: The US should not allow more lenient workplace standards, (4) because workers often have faulty or irrational preferences for riskier work (Broome 1999, pp. 192-198).

O4: A4 is questionable because workers have the right to determine what jobs they want, and the market promotes efficient job-risk matchups (Viscusi et al. 2000, pp. 768-769).

R4: O4 is questionable because workers often are forced into jobs, not because of real preferences but because of economic hardship and low skill levels (Levenstein and Wooding 1997).



**A5:** The US should not allow more lenient workplace standards, (5) because workers ought not be able to trade health for money, since only vulnerable people tend to do so (Leigh 1995, pp. 3-7, 215).

**O5:** A5 is questionable because such trades promote worker freedom (Viscusi et al. 2000, p. 766).

**R5:** O5 is questionable because even the courts recognize that paternalism and worker protection sometimes ought to take precedence over complete worker autonomy (Sellars 1997, p. 47).

### Format for Project Paper P2

See Course Requirements earlier and use directions below to write the project paper P2.

[last name, first name]

Philosophy 190-P2

[date]

In the first paragraph of your 5-10-page paper P2, incorporate all items (2)-(7) as the introduction to your paper. Next divide the paper into 6 remaining sections, the first 5 for the problems in the document, and the last for the bibliography. Use in-text, scientific-citation format, e.g., (Brown 2003, 117). In each of these 5 sections, develop the arguments, objections, and responses, in paragraph form, for each of the 5 problems you outlined in section (8) of project paper P1. Be sure to correct all problems noted on Professor's markings on P1, and also turn in old, marked up (by Professor) P1, along with new P2, and new P1, on the P2 deadline. Think of the 5 arguments, objections, and responses (developed in section (8) of paper P1) as topic sentences to use to write paragraphs for paper P2. Also turn in one- page cover letter to Congress man or federal agency, that summarizes and defends your position.

### ABOUT THE PROFESSOR

Kristin Shrader-Frechette has degrees in mathematics and in philosophy and has done 3 post-docs, one in hydrogeology, one in economics, and one in population biology/community ecology. Author of 350 professional papers and 14 books, her work has been translated into 11 languages and has appeared in science journals such as Science, BioScience, Health Physics and Quarterly Review of Biology, as well as in philosophy journals such as Ethics, Philosophy of Science, and Journal of Philosophy. Her latest book is Environmental Justice: Creating Equality, Reclaiming Democracy. Shrader-Frechette has done environmental justice work in the Americas, Europe, Africa, and throughout the US. She had addressed the national academies of science in 3 nations and advised various foreign and US governments, the UN, and the WHO on issues of quantitative risk assessment and nuclear waste disposal. Shrader-Frechette is a member of the US EPA Science Advisory Board and Chair of the US Bioethics Committee of the US EPA. She also has served on many committees and boards of the US National Academy of Sciences, the UN, the WHO, and the International Commission on Radiological Protection. Her research has been funded continuously by NSF since 1982, and she is Past President of the Risk Assessment and Policy Association and the International Society for Environmental Ethics. Her husband is a software engineer and mathematician. Their children have just graduated from Princeton. All are avid scuba divers and kayakers. See her website at [www.nd.edu/~kshrader](http://www.nd.edu/~kshrader).

DATE	PART OF COURSE	LECTURE TOPIC	ASSIGNMENT FOR THIS DATE
8-24-04 Tues	Methods of Analysis	1. What is philosophy? Overview of Scientific, Ethical, Environmental Problems	1. Choose (list of 3 each) topics for A, B, and E papers. Turn in by Wed. noon at prof's mailbox by door at 211 Malloy. Read Lewis, chs. 1-4.

DATE	PART OF COURSE	LECTURE TOPIC	ASSIGNMENT FOR THIS DATE
8-26-04 Thurs	Methods of Analysis	2. How Science Can Go Wrong: Yucca Mountain: Flawed Science & Ethics; Logical Fallacies and the 5 Criteria	2. Read fallacies and 5-criteria sheets on syllabus and on website. Read Lewis, chs. 5-8, esp. ch. 15, and look for fallacies and problems. If you have time, watch "Trade Secrets" video and do video sheets (on prof.'s website). Sheets are due 9-9-04.
8-28-04 Sat	"	3. <u>Optional</u> Class in 200 Malloy, Lewis analysis	3. Come to session with questions and problems you find in Lewis, so Professor can help you write paper.
8-31-04 Tues	"	4. How to use analytical methods	4. Read Lewis, chs. 9-12. Be prepared to find fallacies and flaws, as per lecture 2. A report, chs. 1-2: _____  A report, chs. 3-4: _____  A report, chs. 5-6: _____
9-2-04 Thurs	"	5. "	5. Read Lewis, chs. 13-14, 16-17. Be prepared to find fallacies and flaws, as per lecture 2. A report, chs. 7-8: _____  A report, chs. 9-10: _____  A report, chs. 11-12: _____ If you have time, Watch "Trade Secrets" video and do video sheets (on prof.'s website). Due on 9-9-04.
9-7-04 Tues	"	6. "	6. Read Lewis 18-20, prepare P1 paper. A report, chs. 13-14: _____  A report, chs. 16-17: _____  A report, chs. 18-20: _____ Watch "Trade Secrets" video and do video sheets (on professor's website). Due on 9-9-04.
9-9-04 Thurs	Background: Poor Environmental Information	7. Economic bias against science	7. Turn in video sheet at class. Read Beder, GS, chs. 1-4 and prepare P1 paper. B report, chs. 1-2: _____  B report, chs. 3-4: _____
9-14-04 Tues	"	8. No class	8. No class. Professor must be at EPA meeting in San Francisco. "Trade Secrets" video makes up for this class. Prepare P1 paper.
9-16-04 Thurs	"	9. Bias, Scientific Think-Tanks, and Public Relations (PR)	9. Read Beder, GS, chs. 5-8 & prepare P1 paper. B report, chs. 5-6: _____  B report, chs. 7-8: _____

DATE	PART OF COURSE	LECTURE TOPIC	ASSIGNMENT FOR THIS DATE
9-21-04 Tues	Background: Poor Environmental Info.	10. Advertising and Bias	10. Read Beder, GS, chs. 9-11 & prepare P1 paper.  B report, chs. 9-10: _____
9-23-04 Thurs	"	11. Media Bias about Science	11. Read Beder, GS, chs. 12-14 & prepare P1 paper.  B report, chs. 11-12: _____  B report, chs. 13-14: _____
9-28-04 Tues	"	12. Greenwashing and Democracy	12. Read Beder, GS, chs. 15-17 & prepare P1 paper. B report, chs. 15-17: _____
9-30-04 Thurs	Background: Poor Information about Science	13. University-Industry Economic Ties	13. Read Krinsky, chs. 1-3; turn in P1 paper.  B report, chs. 1-2: _____
10-05-04 Tues	"	14. Bias on Federal Advisory Committees	14. Read Krinsky, chs. 4-6. _____  B report, chs. 3-4 : _____  B report, chs. 5-6: _____
10-07-04 Thurs	"	15. Conflicts of Interest in Science	15. Read Krinsky, chs. 7-9. B report, chs. 7-8: _____
10-07-04 Thurs	"	16. Go to talk by Dr. Roemer	16. Talk is on technology/surveillance policy and 9-11 Commission, on which Roemer served; talk is at 7 pm Jordan Auditorium, Business School.
10-12-04 Tues	"	17. Bias in Top Scientific Journals	17. Read Krinsky, chs. 10-13; turn in one-page Roemer-talk summary. B report, chs. 9-10: _____  B report, ch. 11: _____  B report, chs. 12-13: _____
10-13-04 Wed	"	18. Go to talk by Dr. Meslin	18. Talk is on bioethics and genomic policy; Meslin was Exec. Dir. Of National Bioethics Advisory Commission; talk is at 3 pm. Location TBA.
10-14-04 Thurs	"	NO CLASS	NO CLASS. CLASS ON 8-28 MAKES UP FOR THIS CLASS.
10-19 & 21 Tues -Thurs	"	NO CLASS	NO CLASS: FALL BREAK

DATE	PART OF COURSE	LECTURE TOPIC	ASSIGNMENT FOR THIS DATE
10-26-04 Tues	"	19. Presidential Scientific, Social, and Public - Health Policy	19. Turn in Meslin summary. Analysis papers today: Debate 1: Deficit/Economics _____  Debate 2: Nuclear Subsidies/Policy _____  Debate 3: Oil Subsidies _____  Debate 4: Mercury Emissions _____
10-28-04 Thurs	"	20. Presidential Scientific, Social, and Public Health Policy	20. Debate 5: Medical Coverage/ Public Health _____  Debate 6: Treatment of Women _____  Debate 7: Treatment of Blacks _____  Debate 8: Education Funding _____
11-2-04 Tues	"	21. Presidential Scientific, Social, & Public Health Policy	Debate 9: Presidential Scientific Advisory Committees _____  Debate 10: Research- Science Funding: _____  Debate 12: US Investi- gations of Saudis _____  Debate 11: Global Warming _____
11-04-04 Thurs	Ethics	22. Ethics and Bias	22. Read TA, chs. 1-2. E Paper, ch. 2: _____
11-09-04 Tues	"	23. Ethics and Objectivity	23. Read TA, chs. 3-5. E Paper, ch. 4: _____  E Paper, ch. 5: _____
11-11-04 Thurs	"	24. Ethics & Duties of Scientific Citizenship	24. Read TA, chs. 6-7.  E Paper, ch. 6: _____  E Paper, ch. 7: _____

DATE	PART OF COURSE	LECTURE TOPIC	ASSIGNMENT FOR THIS DATE
11-16-04 Tues	"	25. Ethics and Objections to Science Advocacy	25. Read TA, chs. 8-9. E Paper, ch. 8: _____  E Paper, ch. 9: _____
11-18-04 Thurs	"	26. Ethics and Constrains on Science Advocacy	26. Read TA, chs. 10-11. E Paper, ch. 10: _____  E Paper, ch. 11: _____
11-23-04 Tues	"	NO CLASS	Roemer talk, 10-7-04, MAKES UP FOR NO CLASS
11-25-04	"	NO CLASS	Thanksgiving
11-30-04 Tues	"	27. Student Project Presentations	27. Student Project Presentations TURN IN P2 PAPER AND REVISED P1 PAPER AT BEGINNING OF CLASS OR BEFORE
12-02-04 Thurs	"	NO CLASS	Meslin talk makes up for NO CLASS; Prof. must give science advice to government in DC.
12-07-04 Tues	"	28. Student Project Presentations	28. Student Project Presentations

#### BOOKS TO CHOOSE FOR EXTRA-CREDIT PAPER

Beder, Sharon, *Power Play*, 2003.

Beder, Sharon, *Toxic Fish and Sewer Surfing*, 1989.

Brown, Donald A., *American Heat*, paper, 2002, \$27.95.

Colborn, Theo et al., *Our Stolen Future: Are We Threatening Our Fertility, Intelligence, and Survival?* Paper, 1997, \$10.50 (\$15.00).

Cole, Leonard A. and Alan Cranston, *Clouds of Secrecy*, paper, 1988, \$15.95.

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