

file: class-483.3

Spring 2000

PHI/STV 483: Ethics of Scientific Research

Professor: Dr. Kristin Shrader-Frechette

Class Time: Tuesday/Thursday 2:00-3:15

Classroom: 332 DeBartolo

Website: <http://www.nd.edu/~kshrader/courses>

To help the professor learn everyone's name, quickly, please sit in the same spot for every class. Also, please bring a photo by class 2 or 3 at the latest, so professor gets to know you.

Place of Office Hours: Decio 309 (sign-up sheet available on office door)

Professor's Office Hours: Tuesday, Thursday: 3:30-4:00; Wednesday 3:00-4:00 p.m.
or any other day and time, by prior appointment

Course Goals: to understand the relationships among scientific work and ethics;
to evaluate the assumptions underlying these relationships;
to gain some philosophical and humanistic perspectives on how the way we
do science and technology affects our lives.

Course Requirements: active analysis in each class; possible Tuesday quizzes, midterm test,
final, 4 short papers, attending 2 afternoon/evening lectures.

Course Texts: Cole, Clouds of Secrecy
Shrader-Frechette, Ethics of Scientific Research

Basis for Determining Course Grade:

- 20 percent, final exam (objective)
- 20 percent, midterm test (half essay, half objective)
- 20 percent, 4 short papers, 1 page each, as specified later in syllabus
- 20 percent, in-class (verbal) analysis of articles: be prepared to analyze at every class.
- 20 percent, Tuesdays' 5-minute quizzes on readings for the week, if necessary

Final Grade: Students who wish to receive their grades immediately and/or to know how
professor computed grades should turn in a stamped, self-addressed envelope
with the final exam.

- +Grading Procedures:(1) In order to get to know students, and to maximize fairness, Dr.
Shrader-Frechette will do all grading/office hours herself, without a
TA. Please come to office hours, or make an appointment by signing
sheet, or see her at class. She typically will not be answering e-mail
quickly, because she is overwhelmed by hundreds of messages. Be
sure to ask questions (on previous material) at beginning of each class.
- (2) On all assignments and tests of any kind, the professor presupposes
correct grammar and spelling. Students will lose points for all errors
of spelling or grammar, as well as for logical, conceptual, or factual
errors made in any course work. Students also will lose points for not
adhering to the paper format.

Exams: For the midterm test and final exam, the professor will give students study sheets from
which the exams will be taken.

Late papers/tests: Because of the importance of treating everyone equally, there will be neither
make-up tests nor acceptance of late papers unless the student notifies the

professor, before the day and time of the test/deadline, about personal/family sickness or family death. If students must miss class because of something such as an athletic competition, they should take the Tuesday quiz on the previous Thursday (after class), and they should turn in papers early, at the last class before they leave.

Format for Four Papers: Turn in two copies of each paper.

- Paper 1: Students should write a one-page, double spaced, 3-paragraph essay on "one of the most serious cases of bias in scientific research today." Each paragraph should explain, respectively, (1) the nature of the bias being discussed, (2) why the bias arguably is so serious, and (3) how we, as individuals, ought to address this hazard. Please staple to your one-page essay a xerox copy of any article/book chapter that discusses the problem/hazard you choose. At the bottom of your one-page paper, put a full and correct bibliographical reference for this article, and be sure the article is from after 1995. At upper right hand of one-page paper, put your first and last names.
- Paper 2: Same format as paper 1, except that the topic is "a moral hero who faced persecution for doing good science or blowing the whistle on bad science." The three paragraphs should address, respectively, (1) who the moral hero is and what he or she did, (2) the obstacles the moral hero had to overcome in order to behave heroically, and (3) how to help society avoid such persecution in the future. (Examples of such moral heroes might be radiation physicists who told the truth about Chernobyl.
- Paper 3: Write a one-page paper on the theme, "government scientific-research priorities are misplaced, in part, because...." Same form as paper 4.
- Paper 4: In-class presentation, pro or con, as chosen by student: On only one sheet of paper, type 5 to 7 positive (supporting arguments) claims, if you are "pro," or 5 to 7 negative (rebutting arguments) claims, if you are "con." Number each of your 5-7 arguments. Each claim should be of the form "A is arguably correct/incorrect about B because C." If your in-class analysis is of a book, give a short, single-spaced abstract of the book, before you give your arguments. Be sure to avoid logical fallacies and be sure to use examples to support or refute claims. Provide two copies of this single page to professor and one copy of this page to each member of the class. On a second page, stapled to the first, provide at least three full, bibliographical citations to important articles and books (since 1990) relevant to the topic under discussion. Be sure citations are to books/articles and not merely from the web, as these latter materials are not always refereed. Each student should choose a topic (first come, first served) from the following list of 20 topics. Unused topics can count for extra credit.

ESR TOPICS FOR PAPER 4

- A: Are field tests (without the public's free informed consent) of biological-warfare techniques ethical?
- B: Is it possible to clean up the biological-research contaminants in "the tower" at Fort Detrick? At Guinard Island?
- C: When government scientific research harms people, is it ethical for the government to claim "sovereign immunity"?
- D: Is it ethical to engage in Star Wars (Strategic Defense Initiative) research?
- E: Given that taxpayers support their medical education, should all MDs be required to perform some public-interest medical research on an ongoing (several hours a month) basis?

- F: Should pharmaceutical companies be responsible for, or merely fund others, research for drug-trial tests on their own drugs?
- G: Should taxpayer money be used to fund biotech research to make crops resistant to chemical pesticides?
- H: Until the nuclear waste problem is solved is it ethical for scientists/engineers to do research on fission or breeder reactors used for commercial purposes?
- I: Is it ethical for the military to use DNA research to develop biological-warfare simulants to test in the open?
- J: Is it ethical for a scientist to do research for a chemical company that produces ozone-depleting chemicals?
- K: Is it ethical for a scientist to do research for a chemical company that produces endocrine-disrupting chemicals?
- L: Argue pro or con the Yucca Mountain Draft EIS (comments due February 5, 2000).
- M: Argue pro or con the scientific/ethical merits of research supporting the Yellowstone nuclear incinerator.
- N: Argue pro or con the ethical acceptability of an engineer's doing a site-feasibility study for siting a hazardous facility in a black/Latino neighborhood, when the blacks/Latinos oppose it or are powerless to stop it.
- P: Examine whether Fred Friendly's, Bill Moyer's, and Daniel Schor's leaving big-time TV-network jobs were ethically required, because of science-related research and its coverage.
- Q: Argue for or against the main theses in Epstein's 1998 book on the politics of cancer. Is it ethical?
- R: Argue for or against the main theses in Epstein's 1998 book on breast cancer. Is it ethical?
- S: Should Ruth Faden's committee, to examine US experiments on the public, have concluded that such experiments (without public knowledge or consent) were ethical, provided an "independent committee" agreed to them?
- T: Should taxpayers fund more AIDs research?
- U: Is it more ethical to use economic methods (such as contingent valuation, or human-use value) than to use benefit-cost analysis for public-health and environmental problems?
- V: Would it be ethical to engage in deceptive research that might enhance people's tendencies toward aggression or toward low self-esteem?
- W: Is Sagoff's ethical skepticism about economic research (in The Economy of the Earth) justified?
- X: Should any research (that involves no use of human subjects) be allowed?
- Y: Was part of Simberloff's research, involving destroying all life on a Florida Key, ethically defensible?
- Z: Is it ethical to use animals to test cosmetics?

COURSE OVERVIEW, ESR

DATE	TOPIC	ASSIGNMENT FOR THIS DATE
TUES. 1-18-00	1. INTRODUCTION TO THE COURSE; THE LOGICAL FALLACIES	1. READ FIRST CHAPTER OF COLE.
THURS. 1-20-00	2. THE 5 LOGICAL CRITERIA: ASSUMPTIONS, CONSEQUENCES, CONSISTENCY, COMPLETENESS, COHERENCE	2. READ SECOND AND THIRD CHAPTERS OF COLE.
TUES. 1-25-00	3. APPLYING THE LOGICAL CRITERIA & FINDING FALLACIES: APPLICATIONS TO THE NAS YUCCA MOUNTAIN STUDY AND THE NAS ZINC CADMIUM SULFIDE STUDY	3. READ FIRST CHAPTER OF SHRADER-FRECHETTE.
WED. 1-26-00	LAST DATE FOR ALL CLASS CHANGES	
THURS. 1-27-00	4. THE TWO NAS STUDIES; FOURTH PAPER TOPIC B: _____ FOURTH PAPER TOPIC L: _____	4. READ FOURTH AND FIFTH CHAPTERS OF COLE.
SUN. 1-30-00	PIZZA & MOVIE ON DOWNWINDERS OR CHERNOBYL AT DR. S-F'S HOUSE, 6 PM	COME TO 838 PARK AVENUE FOR MOVIE/PIZZA AT 6 PM.

COURSE OVERVIEW, ESR

TUES. 2-1-00	5. THE TWO NAS STUDIES; FOURTH PAPER TOPIC D: _____	5. READ COLE, CHS. 6-7.
THURS. 2-3-00	6. DOES THE GOVERNMENT HAVE A DUTY TO SCREEN FOR THYROID CANCERS, CAUSED BY WEAPONS' TESTS IN US, AND TO REOPEN THE TMI REGISTRY? FOURTH PAPER TOPIC C: _____	6. READ COLE, CHS. 8-9.
TUES. 2-8-00	7. DNA RESEARCH; FOURTH PAPER TOPIC I: _____	7. READ COLE, CHS. 10-11.
THURS. 2-10- 00	8. REVIEW COLE. DISCUSS CLAIBORNE ENRICHMENT CENTER IN LOUISIANA	8. READ COLE, CH. 12; TURN IN PAPER 1.
TUES. 2-15-00	9. DISCUSS PAPERS; FOURTH PAPER TOPIC G: _____	9. READ APPENDICES IN COLE.
THURS. 2-17-00	TEST ON COLE AND S-F, CH. 1.	"

COURSE OVERVIEW, ESR

TUES. 2-22-00	10. DISCUSS TESTS; FOURTH PAPER TOPIC F: _____ FOURTH PAPER TOPIC M: _____	10. READ CH. 2, ESR.
THURS. 2-24-00	11. OVERVIEW CH. 2, ESR.	11. TURN IN PAPER 2.
TUES. 2-29-00	12. BACKGROUND FOR ESR; DISCUSS PAPERS; FOURTH PAPER TOPIC K: _____	12. READ CH. 3, ESR.
THURS. 3-2-00	13. BACKGROUND FOR ESR; FOURTH PAPER TOPIC Q: _____	13. READ CH. 3, ESR.
TUES. 3-7-00	14. FOURTH PAPER TOPIC N: _____	14. READ ESR, CH. 4.
THURS. 3-9-00	NO CLASS BECAUSE OF MOVIE ON 1-30-00	RELAX.
TUES. 3-14-00	SPRING BREAK	RELAX.

COURSE OVERVIEW, ESR

THURS. 3-16-00	SPRING BREAK	RELAX.
TUES. 3-21-00	5. FOURTH PAPER TOPIC S: _____	15. READ CH. 5, ESR.
THURS. 3-23-00	16. ETHICAL ANALYSIS; FOURTH PAPER TOPIC E: _____	16. READ ESR, CH. 5.
FRI. 3-24-00	LAST DAY TO DROP	
TUES. 3-28-00	17. RESEARCH, UNCERTAINTY, BURDEN OF PROOF, & INFERENCE OPTIONS	17. READ CH. 6, ESR; TURN IN PAPER 3.
THURS. 3-30-00	18. BIAS IN RESEARCH; WHO IS RIGHT ON CANCER RESEARCH, AMES OR EPSTEIN? THIS IS A FOURTH PAPER TOPIC: _____	18. READ CH. 6, ESR.
TUES. 4-4-00	19. CONSERVATION RESEARCH AND BIAS; IS THE NRC RIGHT ABOUT ECOLOGICAL RESEARCH? FOURTH PAPER TOPIC Y: _____	19. READ CH. 7, ESR.

COURSE OVERVIEW, ESR

THURS. 4-6-00	NO CLASS BECAUSE OF LECTURE ON 4-12-00	READ CH. 7, ESR.
TUES. 4-11-00	20. GENDER & RACIAL BIAS IN SCIENCE; FOURTH PAPER TOPIC: READ <u>RISKY BUSINESS</u> AND ARGUE PRO OR CON THIS WORKPLACE DISCRIMINATION: _____	READ CH. 8, ESR.
WED. 4-12-00	4:30 PM REASON WAREHIME TALK	LECTURE SUBSTITUTES FOR NO CLASS ON 4-6-00
THURS. 4-13-00	21. BIAS IN SCIENCE; FOURTH PAPER TOPIC: CRITICAL EVALUATION OF <u>ONE-EYED SCIENCE</u> , BY MESSING, STELLMAN, SIRIANNI: _____	21. READ CH. 8, ESR.
TUES. 4-18-00	22. ENGINEERING RESEARCH; FOURTH PAPER TOPIC U: _____	22. READ CH. 9, ESR.

COURSE OVERVIEW, ESR

<p>THURS. 4-20-00</p>	<p>23. SHOULD GOVERNMENT ABANDON COMPUTER MODELS TO VERIFY/VALIDATE HIGH-LEVEL WASTE DISPOSAL OR NUCLEAR SAFETY?</p> <p>FOURTH PAPER TOPIC H: _____</p>	<p>23. READ CH. 9, ESR.</p>
<p>TUES. 4-25-00</p>	<p>24. THE NATIONAL ACADEMY MODEL; PUBLIC HEALTH RESEARCH;</p> <p>FOURTH PAPER TOPIC Z: _____</p>	<p>24. READ CH. 10, ESR.</p>
<p>THURS. 4-27-00</p>	<p>25. FLAWS IN RISK RESEARCH;</p> <p>FOURTH PAPER TOPIC: EVALUATION OF GOULD & GOLDMAN, <u>DEADLY</u> <u>DECEIT</u>:</p> <p>_____</p>	<p>25. READ CH. 10, ESR.</p>
<p>TUES. 4-2-00</p>	<p>26. LAST CLASS: REVIEW; ADVOCACY FOR GOOD SCIENTIFIC RESEARCH</p>	<p>26. REVIEW.</p>