

# Biomedical Ethics, Scientific Evidence, and Public Health

BIOS 50545, PHIL 43708, STV 40216

FALL 2018

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Professor: Dr. Kristin Shrader-Frechette

Class Time: Tuesday, 3:30-6:00

email: [kshrader@nd.edu](mailto:kshrader@nd.edu)

Classroom: 220 Malloy

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

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To help the professor learn everyone's name quickly, please sit in the same spot for every class; choose your seat on first day.

**Place of Office Hours:** Malloy 211 (sign-up sheet available on office door).

**Office Hours:** Mon and Tues 2-3:15; for other times, by appointment, see sign-up sheet on door. If listed times won't work, see note on office door or set up time with prof at class.

**Late-Paper Policy:** Professor accepts **no late papers**, and gives grade 0, except in case of MD note, which is required at next class. In case of sickness students must contact professor, by email, before due date/time. Prof does in-class, evaluation of student P & S papers, based on **first-come, first-served basis**.

**Questions:** At beginning of each class, the professor asks for questions. At this time, be sure to ask questions about assignments, research, procedures, or content of prior lectures. For government-research, scientific journal, journal-database questions for your paper assignments, see professional ND (research or govt.-doc) librarians. Before you email the professor with a question, please (1) read the syllabus very carefully first, and (2) ask the question at class.

**Contact Information:** Please see Dr. Shrader-Frechette during her office hours or after class. For appointments, please sign the sheet on her office door. If none of these appointment times will work, please follow directions on the office door and email her, 1-2 weeks ahead of time, at [kshrader@nd.edu](mailto:kshrader@nd.edu) to let her know 4 times that you are available Mon-Tues, 6:15 or 6:30 pm. Dr. Shrader-Frechette receives about 100 emails daily, many handled by her assistant. Unfortunately, this high email-volume means she cannot quickly answer student emails, so email her early. For emergency/sickness contact, email her. Dr. Shrader-Frechette often is out of town weekly (doing science, ethics, and public-health advising work in Washington, DC or pro-bono public-health work in US/abroad), hence cannot quickly see those who do not make appointments far in advance.

**Course Goals:** to understand relationships among biomedical science, ethical theory, public health;  
to evaluate the ethical and legal assumptions underlying these relationships;  
to gain perspectives on how public-health policies-ethics affect our lives and health.

## Course Overview

- I. **Severity of PHP:** How Serious Are Public-Health Problems (PHP)?
- II. **Causes of PHP:** Why Do Good People Do So Little About Public-Health Problems (PHP)?
- III. **Ethical Solutions to PHP:** How Does Logical and Ethical Analysis Help Resolve PHP?
- IV. **PHP Issues:** How Does One Resolve Key PHP?

## Required Books (about \$ 38)

1. ASPH (Assn of Schools of Public Health), Ethics and Public Health; available to read or download online, free, at <http://www.asph.org/UserFiles/EthicsCurriculum.pdf>
2. Samuel Epstein, MD, Unreasonable Risk, 2005, available free at ND library reserve or from Amazon for \$ 23, or buy used.
3. Shrader-Frechette, Taking Action, Saving Lives (NY: Oxford University Press, 2007); available from Amazon for about \$ 23 and also from bookstore. Also available from Oxford University Press for about \$ 23, if you get 20% discount coupon from Prof's website ([www.nd.edu/~kshrader](http://www.nd.edu/~kshrader)).
4. Singer, How Are We to Live?, available at bookstore or on Amazon for \$ 15.

5. New York Times subscription (paper copy required), Mon-Fri for 15 weeks = \$ 12, or free on campus. For subscription, follow directions at [http://homedelivery.nytimes.com/HDS/CollegeSearch.do?mode=SearchCollege&who=stud&SELECTED\\_MENU=24&SELECTED\\_MENU\\_PARENT=22](http://homedelivery.nytimes.com/HDS/CollegeSearch.do?mode=SearchCollege&who=stud&SELECTED_MENU=24&SELECTED_MENU_PARENT=22). YOU ALSO CAN USE HARD COPY OF NYT, PICKED UP ON CAMPUS, BUT **MUST ALWAYS TURN IN HARD COPY OF ARTICLE, STAPLED TO YOUR REVIEW**. Weekly hard copies of NYT articles are ALWAYS necessary.

**Assignments and Requirements:** For all papers EXCEPT NYT, number each line. Grammar must be without errors, or students will lose points. For papers P,S,E, be sure that you use (as many as possible) up-to-date scholarly books and articles (mainly from refereed journals). Although professor is one of the top scholars in the field covered by the course, do not cite her work in these papers. Also, use neither mere website material, nor popular sources, nor sources likely to have some bias (e.g., from industry or citizen-advocacy groups). You may use government documents. Do not use any newspaper sources unless they are absolutely necessary, given the type of paper you are writing. (For instance, paper S7 [on syllabus list, p. 5] would require you to use some newspaper citations.) Other assignments and requirements are listed below:

1. 3 one-page **class papers**, 1 personal impact (P), 1 science (S), and 1 ethics (E); bring copies for entire class; give professor hard copy, in 211 Malloy, 48 hours before class. Put all references in standard format. (See paper examples in syllabus.)
2. 4 one-page **review papers** (R), of S papers and E papers of persons on your immediate right and left, copies for professor/all class members, at class.
3. short **quizzes** (Q) at each class, on that week's readings; no tests. At end, top quiz grade will be set = 100.
4. watch 2 **videos** (V), available at library, and turn in video sheet (from website class materials)
5. one-page **overview** (O) of some public-health issue, due beginning of class, from NY Times of the previous 6 days.
6. classroom **analysis** (A) for each class and attendance at each class; grade also is based on the quality of student's oral presentations, in class, of papers P, S, E, R – so students should “present,” not read, them.

Prof does in-class, evaluation of student P & S papers, based on beginning with papers turned in first. Students who **forget (1) to bring copies of P, S, E, R papers for class members, or (2) to put papers in professor's box, 48 hours early, or (3) to put line numbers on papers, will lose 5 points for each problem.**

#### Grades

- Each item counts 20%, as follows: (P+R), S, E, Q, (O, A, V); extra-credit papers count same as S or E, so divisor = 6 not 5, and each item counts as 17% when student does extra-credit project.
- Professor accepts no late assignments and gives no incompletes, except when students have doctor's note and make prior arrangements, by phone, in person, or via email, before the due date. If athletes will be out of town, they should arrange to take quiz or turn in papers early.
- Students are graded only on their facts and logic, not the nature or content of their opinions.

#### Format for 1-Page (Only) Assignment, Weekly NYT Summaries:

1. Use articles only from the previous 6 days. Use Oxford University Press formatting-style for New York Times summaries each week, and put this NYT citation at the top of the summary page, e.g., **Gardiner Harris, “Congressional Investigators Are Critical of F.D.A.’s Efforts to Detect Drug Dangers,” *The New York Times* CLV, no. 53559 (April 24, 2006): A12.** (Note that newspaper grammar and style are not the same as required in scientific and scholarly writing.) Always check the grammar sheet, given by professor, before you turn in your paper.
2. One-page NYT summaries should have 3 paragraphs. First paragraph should be the longest and should summarize the main points of the article. Second paragraph should explain why the issue covered is a public-health problem. Third paragraph should summarize what you can do to help alleviate this public-health problem.
3. Cut out the NYT article; **always staple** it to back side of your summary.

**Class Videos** (1) Coverup at Ground Zero (ABC “Turning Point”), (2) “Declassified: Human Experimentation,” (3) “Trade (# 3-4 required; Secrets,” (4) NOVA: “A Plague on Our Children,” (5) “Save the Males,” and (6) Moyer’s “Now” series on the others are extra income gap and medical insurance (call #M938-31VC) – all are on second floor of library. credit).

### **Format for 1-Page (Only) Assignment, Paper P (Personal Impacts of P-H Problems):**

Discuss a specific ailment/disease/death of any family member or close friend and give at least 5 reasons to show that it might be related to specific, named environmental factors, e.g., benzene, Iodine-131; give evidence that the disease, e.g., lung cancer, is caused by some environmental contaminant, e.g., smoking. However, do not use anything connected to smoking, or to skin cancer and the sun, as these ties are well established. Possible diseases might be leukemia, multiple myeloma, thyroid cancer, liver cancer, breast cancer, prostate cancer, brain cancer, non-Hodgkins lymphoma, autoimmune diseases, asthma, ADHD, depression. Always check the grammar sheet, given by professor, before you turn in your paper. Have someone else read paper, to check for problems of logic and grammar. Follow model below, and be sure to have all 3 parts of paper, as shown below, and at least 5 references from recent, first-rate scientific journals (or recognized medical authorities or government, e.g., EPA, if journal literature is not available). Use no mere web data; put references in scientific format, as in model-paper by ND student Kate Distler (see syllabus, p. 10). Do not pad bibliography, and use only references that you cite in text. Do not make claims you cannot back up with citations; give several reasons for your claims. Rewrite the paper several times to be sure it is logical, clear, well argued, and grammatical. Use correct citation format, as in model paper. Each argument should be complete, in itself. At least 48 hours before beginning of class (at which paper is due), put hard copy in professor's box (211 Malloy) and send her an email copy. Class-analysis grade will depend partly on how well you present P in class; do not merely read it. Students who forget copies for classmates lose 5 points.

### **Format for 1-Page (Only) Assignment, Paper S (Scientific Issue Re P-H Problems):**

From subsequent pages of syllabus, choose which S paper topic you would most like, and follow model below. Do not use topics treated in sample papers. (Before Friday noon of first week of class, put 3 priority-ranked S topics in box by professor's door at 211 Malloy. If you have another topic you would like, propose it to professor at the same time.) Be sure to have all 3 parts of paper (thesis, at least 5 arguments, at least 5 items in bibliography). Always check the grammar sheet, given by professor, before you turn in paper. Follow model in syllabus. Use the 5 criteria and be sure to use recent, first-rate scientific journals (or recognized medical authorities or government, e.g., EPA, if journal literature is not available). Use no mere web data, and put references in standard scientific format, as in model-paper by ND student John Ray. Do not pad the bibliography, and use only references that you cite in text. Do not make claims that you cannot back up with citations, and give several reasons for your claims. Rewrite paper several times to be sure it is logical, clear, well argued, and grammatical. Have someone else read paper, to check for problems of logic, clarity, or grammar. Be sure to use correct citation format, as in model paper. Each of 5 arguments must be complete arguments. At least 48 hours before beginning of class (at which paper is due), put hard copy in professor's box (211 Malloy) and send her/reviewers an email copy. Class-analysis grade will depend partly on how well you quickly present S in class; do not merely read it. Students who forget copies for classmates lose 5 points.

### **Format for 1-Page (Only) Assignment, Paper E on Singer**

This paper is like paper S in format, but its content should be largely ethical, rather than scientific. For help, see ethics material in the Singer, Shrader-Frechette, and ASPH course readings. From syllabus, p. 14, choose which Singer paper topic you would most like, and follow model below. (Before Friday noon of first week of class, put 6 priority-ranked E topics in box by professor's door at 211 Malloy (8 Singer chapters, pro or con; see exception for chapter 9). "Pro" topics must have new material, not in Singer, that provides new data or arguments for a specific claim of his. If you have another topic you like, propose it to professor at the same time.) Be sure to have all 3 parts of paper (thesis, at least 5 arguments, at least 5 items in bibliography). Always check the grammar sheet, given by professor, before you turn in your paper. References should be from recent, first-rate ethical and scientific journals/books (or recognized government sources, and recognized medical authorities if no journal data are available). Use no POPULAR OR mere web data, and use the 5 criteria. Put references in standard format, as in model-paper. Do not pad bibliography. Use only references that you cite in text. Do not make claims that you cannot back up with citations, and give reasons for your claims. Rewrite paper several times to be sure it is logical, clear, well argued, and grammatical. Have someone else read paper, to check for problems of logic, clarity, or grammar. Be sure to use correct citation format, as in model paper. Each of 5 arguments must be complete arguments. At least 48 hours before beginning of class (at which paper is due), put hard copy in professor's box (211 Malloy) and send her/reviewers an email copy. Class-analysis grade will depend partly on how well you quickly present E in class; do not merely read it. Students who forget copies for classmates lose 5 points.

### Format for 1-Page (Only) Assignment, Paper R (Review):

4 one-page **review papers (R)**, of S and E papers of persons on your immediate right and left, are due at class on same day as the person's S and E papers are due. Bring copy for professor and for entire class. Each of these 4 papers must have at least 6 numbered sentences (3 positive, 3 constructive criticism), with blank lines between points, assessing the paper. Use the 5 criteria. Separate sentences/points should be numbered. Each sentence must be of the form: "A is B because C." Each sentence should list a precise argument or reference being evaluated. Sample positive sentence: "Mary Smith's argument 3 is more convincing because it effectively answers a prominent objection to her thesis, namely that the consensus of journal articles does not agree with her position." Sample constructive-criticism sentence: "Joe Brown's second argument is weak because, although Joe seems possibly correct to argue that his grandmother's breast cancer occurred because of her taking menopausal hormones, Joe does not systematically eliminate other likely causes of her cancer, such as family history or genetics." Mention very specific arguments and claims of author, and make no general statements about the paper. Avoid hasty generalizations, such as "Joe's paper is good because. . . ." Have someone else read paper, to check for problems of logic, clarity, or grammar. No later than 48 hours prior to class beginning, people whose papers are being evaluated should give professor hard copy in 211 Malloy box and should send professor and their two evaluators final email copies of their papers. In email subject line, put: "S paper for PH," "E paper for PH," etc. If authors do not send paper to professor and evaluators in time, authors will lose 20 points. Always check the grammar sheet, given by professor, before you turn in your paper. Format: at center top of paper R, put: "Review of Joe Smith Paper E." Skip 2 lines, and at far left, put your own name, followed by: "PH Class." Class-analysis grade will depend partly on how well you quickly present R in class; do not merely read it. Be sure to bring extra copy of R paper to class, so that you can present it. Develop each R point completely/precisely, and give full reasons for each point. Students who forget extra copies of R papers will lose 5 points.

### Assignment S (Scientific Controversy): Choose-Rank 3 of the topics below and email hard copy to KSF:

(Assignments are "first come, first served." Note that "con" papers are much easier to do than the "pro" papers because, if you support a person/position, you must find reasons that are not already used by the person to support his/her position – i.e., you must provide original, new arguments for agreeing with the person. If you are "con," you need only show that/why a claim is doubtful.) Be sure to give specific quotations and page citations for each claim that you criticize.

- S1. Dr. Elizabeth Whelan, President of the American Council on Science and Health, in a 12-29-04 article, says one of the "Great Unfounded Health Scares of 2004" is that Teflon causes health problems." Is she right? Why or why not?
- S2. Dr. Elizabeth Whelan, President of the American Council on Science and Health, in a 12-29-04 article, says one of the "Great Unfounded Health Scares of 2004" is that cell phones cause brain tumors." Is she right? Why/why not?
- S3. Dr. Elizabeth Whelan, President of the American Council on Science and Health, in a 12-29-04 article (<http://www.aboutmytalk.com/t175703/s&.html>), says one of the "Great Unfounded Health Scares of 2004" is that thimerisol- and mercury-containing "childhood vaccines cause autism" and other neurological problems. Is she right? Why or why not?
- S4. In 1994, the Natural Resources Defense Council was given a "Pinocchio Prevaricator's Award by the ACSH for spreading false information about the health hazards to children of the pesticide Alar. Was the award deserved?
- S5. Dr. Devra Davis, Carnegie Mellon University epidemiologist says that environmental estrogens, including chlorine compounds, are partly responsible for the increase in breast cancer. Is she right? Why or why not?
- S6. Does the much higher incidence of breast cancer on Long Island likely have specific environmental causes?
- S7. New York Times science writer Richard Severo, nominated 4 times for Pulitzer Prizes, charged he was reassigned to a lesser job because he offended corporate sensibilities with articles on GE pollution of the Hudson River. Was he right?
- S8. New York Times science writer Richard Severo, nominated four times for Pulitzer Prizes, said he was reassigned to a lesser job because he documented Dupont's genetic testing on its African-American employees. Was he right?
- S9. MIT's Mark Dowie has charged that New York Times Science writer Gina Kolata has a pro-corporate/anti public-health bias. Who is right?

- S10. Is **Wi-Fi** risky to health? Discuss only Wi-Fi and not cell phones (which typically cause more exposure).
- S11. Are **oral contraceptives** risky to the health of potential mothers?
- S12. Are **plastic water bottles** risky to health?
- S13. Are **plastic food containers** risky to health?
- S14. Which is a safer sweetener, **splenda** or **stevia**?
- S15. Which is a safer sweetener, **splenda** or **aspartame**?
- S16. Are **statin drugs** the safest/best way to control high blood pressure? What about natural, soluble, psyllium?
- S17. Would it be safer/medically more effective to use **MRI, not X-ray** technology, for yearly mammograms?
- S18. Are **dental X-rays** associated with any negative health effects?
- S19. Are juices and soda, from **plastic-lined metal cans**, risky to health?
- S20. About how many deaths did **Fukushima radiation** from the March 2011 Japanese nuclear accident cause?
- S21. How expensive is **wind energy** now, as compared to coal energy?
- S22. How expensive is **solar PV energy** now, as compared to coal energy?
- S23. How expensive is **nuclear energy** now?
- S24. Are environmental pollutants (and which ones) obesogens --- **chemicals causing obesity**?
- S25. What are the likely environmental causes of **ADHD**?
- S26. What are the likely environmental causes of **autism**?
- S27. What are the likely environmental causes of **learning disabilities**?
- S28. Do environmental chemicals "program" infants/children for epigenetic changes, **developmental disorders**?
- S29. Why, specifically, is it never a good idea to **diet during pregnancy**?
- S30. Does **child abuse** cause DNA methylation changes, disease, or epigenetic changes?
- S31. Does pollution (what kind?) cause **DNA methylation** changes, disease, or epigenetic changes?
- S32. Can **pollution exposure of grandparents or great-grandparents** affect current children's health? How?
- S33. Can pollutants stop the effectiveness of **vaccines**? How?
- S34. Can exposure to plastics, pesticides, herbicides PCBs, etc., **make you fat**?
- S35. Do low doses (25 mg.day) of **BPA and tamoxifen** induce more/less cancer than high doses (250 mg/day)?
- S36. Do plastics such as BPA induce **anxiety and depression**?
- S37. Why does the US have the **lowest puberty ages** in the developed world?
- S38. Do flame retardants—used in bedding, children's clothing--- retard fires? Cause **learning deficits, IQ loss**?
- S39. Does alcohol (beer, wine) cause neurological harm, even at the lowest doses?
- S40. Do plastics cause neurological harm?
- S41. Explain how 5 CHOSEN prescription drugs can cause neurological harm.
- S42. Explain how 5 CHOSEN supplements can cause neurological harm.

**Assignment E (Ethics Controversy): Choose/Rank 3 Singer topics below:**

(Assignments are "first come, first served"! Note that "con" papers are easier to do than "pro" papers because, if you support a person/position, you must find reasons that are not already used by the person to support his/her position. That is, you must provide original, new arguments for agreeing with the person. If you are "con," you need only show why a claim is doubtful.)

Evaluate Singer in chs. 2, 3, 4, 7, 8, 9 (only pro), 10, 11. From pp. 16-17 of syllabus, choose/rank 8 Singer chapters; tell whether you want pro or con in each. Do not choose Singer, ch. 9, con, as this is covered in model paper.

**Extra-Credit Papers:** Must be of same form as S or E. Select some new topic 1 below & turn in 48 hours before class begins 10-2-18, or select some new topic 2 below pre-approved by professor, before FALL break. Topic 2 papers (emailed and hard copy in box at 211 Malloy) are due 48 hours before beginning of class on 11-13-16. In grading, paper will receive same weight as S & E papers. Prof will grade P, S, EX CR papers/discuss them in class--in order received

**Extra-Credit Topics 1: Email Prof a 1-page extra-credit paper, due 48 hrs before class begins 10-2-18, of same form as S/E paper, that addresses one of the 9 following EC topics:**

1EC. Precisely and scientifically, argue whether and why/why not current federal challenges to the Clean Power Plan would harm public health and kill people.

2EC. Precisely and scientifically, argue whether and why/why not current federal challenges to the Clean Water Rule would harm public health and kill people.

3EC. Precisely and scientifically, argue whether and why/why not the current federal reversal---of the ban on chlorpyrifos--- would harm public health and kill people.

4EC. Precisely and scientifically, argue whether and why/why not the federal proposal---to close the Department of Justice's Office for Access to Justice and thus restrict people's ability to use the courts to defend their consumer protections, public health and safety, and the environment--- would harm public health and kill people.

5EC. Precisely and scientifically, argue whether and why/why not the current federal proposal---to reject the Obama-era 2022-2025 car-and-light-truck emissions standards---would harm public health and kill people.

6EC. Precisely and scientifically, argue whether and why/why not the federal proposal---for nearly a 40-percent cut to DOE's Office of Energy Efficiency and Renewable Energy---would harm public health and kill people.

7EC. Precisely and scientifically, argue whether/why/why not the recent federal action---halting a US National Academy of Sciences' study of health risks to residents near coal mines---would harm public health and kill people.

8EC. Precisely and scientifically, argue whether and why/why not the federal rejection---of the 2016 moratorium on coal leases on federal lands --- would harm public health and kill people.

9EC. Precisely and scientifically, argue whether and why/why not the federal government's revoking the U.S. Department of the Interior's "Stream Protection Rule"---that restricts dumping mining waste into surrounding waterways---would hurt harm public health and kill people.

**Extra-Credit Topics 2: Choose any unused S topic above or 1 below. (Those below require great ethics skill.)** Choose any topic & tell prof before last class before Fall break, so she knows you are doing it for extra credit.

E 2.1 **Consent:** Should medical experiments on children be allowed, provided their parents consent?

E 2.2. **Consent:** for national security reasons, should biological/chemical warfare experiments continue on military personnel who volunteer to take part in them, as with A-bomb testing, provided personnel receive full/perpetual health coverage?

E 3.1 **Equal Protection:** Do especially sensitive people deserve the same level of protection from pollutants that average people receive, so that their risks are the same? If so, how might sensitive people be compensated?

E 3.2 **Equal Protection:** Is the WTO correct to allow pesticides, banned in the US, to be imported to US from other nations?

E 4.1 **Due Process and Fair Play:** Should citizens who serve on governmental public-health/environment-related boards or advisory groups receive full compensation for their time and expenses?

E 4.2 **Conflicts of Interest:** Should scientists/medical doctors who serve on federal science-advisory boards that make regulations/policy recommendations be required to publicly declare all their income/consulting monies over \$5000 each year?

E 4.3 **Autonomy/Freedom:** Should US patients, who are terminally ill, have the right to choose to try whatever untested therapies they wish?

E 5.1 **Privacy:** Did government biological-weapons research plausibly play any role in the outbreak/spread of Lyme Disease?

E 5.2 **Rights to Know:** Should all US cattle be tested for Mad Cow Disease, as they are in some other nations?

E 6.1 **Preventing Harm:** Should all illegal drugs be legalized, as in the Netherlands, and should the government provide maintenance drugs, so as to prevent drug-related crime and help care for the addicts?

E 6.2 **Preventing Harm:** Should all medical students be required to take 4 courses – in prevention, occupational illness, environmental illness, and nutrition – as part of their education?

E 6.3 **Rights to Know:** Should the names and addresses of convicted child molesters, once they are released from prison, be available to all, in order to protect potential victims?

E 6.4. **Rights to Know:** Are current government rules, allowing polluters not to meet community right-to-know provisions, given National Security and terrorist threats, ethically defensible?

E 7.1 **Protection of the Vulnerable:** Should all US occupational-health standards be as strict as in the strictest EU nations?

E 7.2 **Protection of the Vulnerable:** Should pregnant women be kept from hazardous workplaces, as many chemical companies do and as some nuclear industries tried to do?

E 8.1 **Autonomy:** Should employers have the right to perform genetic screening of all potential employees?

E 8.2 **Paternalism:** Should genetically susceptible individuals be kept from hazardous workplaces, as many chemical companies do and as the Navy did in its nuclear submarine program?

E 9.1 **Human Rights:** Do all people everywhere have the same right to breathe clean air & drink clean water, as the UN says?

E 9.2 **Human Rights:** Should the US have single-payer, universal health care for all, so that wealthier people can purchase additional care if they wish?

## ABOUT THE PROFESSOR

Kristin Shrader-Frechette has degrees in mathematics and in philosophy of science and has done 3 post-docs, one in hydrogeology, one in economics, and one in population biology/community ecology. Author of 400 professional papers and 17 books, her work has been translated into 17 languages and has appeared in science journals such as Science, BioScience, Health Physics, Quarterly Review of Biology, American Journal of Public Health, Global Health Perspectives, and Environmental Health, as well as in philosophy journals such as Ethics, Philosophy of Science, and Journal of Philosophy. Her Taking Action, Saving Lives appeared in 2007. Her What Will Work: Fighting Climate Change with Renewable Energy, Not Nuclear Power, appeared in 2011. Her Tainted: Using Philosophy of Science to Expose Bad Science appeared in 2014. Shrader-Frechette has done public-health work in the Americas, Europe, Africa, the Arctic, and throughout the US, and she is one of the top philosophers in the world who works on ethics and public health. She has 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, public health, and nuclear-waste disposal. Shrader-Frechette has been 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. Shrader-Frechette was asked by the Association of Schools of Public Health to write 2 of the chapters of its recommended curriculum on ethics – that on environmental health and that on occupational health, because her work is well known in both areas. Her husband is a software engineer and mathematician (PhD). Their children graduated from Princeton. One just finished an MD/PhD at U of California, and the other has just graduated from law school in Chicago and is in private practice. All are avid scuba divers, runners, and kayakers. See her website at [www.nd.edu/~kshrader](http://www.nd.edu/~kshrader).

## Sample Assignment P [An A paper, with only minor flaws, but needs newer references and line numbers.]

Mildred House and Multiple Myeloma [name victim and give the disease]

**1. What Happened to the Family Member or Friend** [give lots of personal-interest details] My mother, Mildred House was a vibrant, loving, outspoken, petite mother and wife. Earning her university degree after her three eldest children, she was a former PTA President, newspaper columnist, a lifelong civil-rights activist, and Kentucky's first white member of the National Association for the Advancement of Colored People (NAACP). Once her three youngest children were in school, she taught English in the poorest, largely-minority, public high school in Louisville, Kentucky. An avid tennis player, swimmer, and cook, she was best known for her love of children. Whenever children at the local orphanage were having a difficult time, their caregivers would call her to take them in, until they were able to adjust. In this way, Mildred became mother to four additional children, besides her six biological children. Known for throwing large, noisy parties, full of dancing and singing, she loved having guests from three or more generations. Her death at age 44 from multiple myeloma (MM), bone cancer, was likely caused by overexposure to medical x-rays.

**2. What May Have Caused What Happened:** At least 6 reasons suggest that my mother likely died of MM because of unnecessary x-rays. Because she was a tiny woman, during each of 6 pregnancies, beginning in her twenties, her obstetrician x-rayed her pelvis to see if the child's head could pass through the birth canal.

2.1. MM tends to be a disease of blacks, men, those older than age 65, and those exposed to ionizing radiation or petrochemical pollutants (Perrotta et al. 2008); my mother fits no risk factors except radiation exposure.

2.2. MM is very well documented as being caused by workers' exposures to repeated doses of ionizing radiation – which has no safe dose and whose effects are cumulative and additive (NRC 2006) – and by soldiers' exposures to nuclear-weapons test fallout (Muirhead 2004), and my mother's doses appear to be of the same levels as those of workers and soldiers (Nussbaum et al 1990).

2.3. MM is a rare cancer, occurring in only about 1 percent of all cancers (Ashcroft 2003). This rarity suggests it has an unusual cause—such as repeated radiation exposures when the victim was in her twenties (see 2.1).

2.4. With no family history of cancer, my mother was healthy, well educated, highly athletic, and never worked outside the home except for teaching several years. Thus diet, lifestyle, and workplace likely did not contribute to her MM.

2.5. The MM appeared first in her pelvis, precisely where she was X-rayed repeatedly; given 2.1 and 2.2, this exposure increased the likelihood of radiation-related cancer, like MM.

2.6. The MM appeared 20 years after her first pelvic X-ray exposure, consistent with its latency time (Muirhead 2004).

### 3. Bibliography

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## Sample Assignment P

[THIS SAMPLE PAPER P IS AN "A" PAPER, HAS ONLY MINOR INCOMPLETENESS, BUT NEEDS NEWER REFERENCES AND LINE NUMBERING].

Kate Distler

**1. What Happened to the Family Member or Friend:** My grandmother was diagnosed with Alzheimer's disease (AD) five years ago at the age of 76. Her AD has progressed since diagnosis. She now has moderate or mid-stage AD (stage 5 out of 7).

**2. What May Have Caused What Happened:** At least six reasons suggest that my grandmother's AD is related to occupational pesticide exposure, to organophosphates, as a florist.

First, there is strong evidence that vascular risk factors such as heart disease, stroke, diabetes and smoking are risk factors for AD (Luchsinger et al 2005). My grandmother, however, fits none of these factors.

Second, there is evidence that a history of dementia in siblings and/or parents is also a risk factor for AD (Brown 2005). Yet there is no family history of dementia, neurological disease or AD in my grandmother's family.

Third, numerous studies have found that environmental factors are also risk factors for AD (Gatz et al 2005; Brown 2005; Landrigan et al 2005). Because my grandmother is otherwise healthy and because her AD does not appear to be genetic, it follows that my grandmother might have developed AD because of environmental causes.

Fourth, links have been established between cumulative exposures to pesticides and the development of neurological diseases, particularly Parkinson's disease and AD (Baldi 2003).

Fifth, in 1979, 350 million cut flowers were imported into the United States for use in florist shops. These flowers were imported with strict regulations on pests and plant diseases, but without regulations on pesticides. As a result, imported flowers often underwent heavy pesticide applications prior to shipment. Many of these pesticides were fat-soluble and could be absorbed through the skin. My grandmother, working as a florist from 1965-1982, handled many imported flowers and could have been exposed to exceptional levels of pesticides. (Morse et al 1979).

Sixth, recently, specific pesticides (organophosphates and carbamates) have been closely linked with AD (Brown 2005). In 1979 (again when my grandmother was working as a florist) ten florists were found to have organophosphate poisoning due to occupational exposure to organophosphate pesticides (Morse et al 1979). This suggests that many florists at that time, including my grandmother, were not only exposed to pesticides but to organophosphates in particular. As a florist for seventeen years, my grandmother was likely exposed to cumulative levels of organophosphates that could have reasonably contributed to her AD.

### 3. Bibliography

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## Paper E: Singer chapter 9 – Con

[THIS SAMPLE E PAPER IS AN “A” PAPER, HAS ONLY MINOR INCOMPLETENESS,  
BUT NEEDS NEWER REFERENCES AND LINE NUMBERS.]

Julie Kessler

**Thesis:** Chapter 9 of *How Are We to Live?* discusses the nature of ethics, dismisses several theories of ethics, and supports some ethical principles that (Singer says) lead to universal concern for others. There are at least 5 reasons to suggest Singer's positive account lacks sufficient evidence and that his dismissal of other theories is unwarranted.

1. Singer discusses the possibility that ethics is gendered and hypothesizes that “the predominance of women in environmental and animal movements therefore suggests a greater readiness to work for larger goals and not just to help oneself or one’s own kind” (179) because they have adopted more of an ethics of universal concern, or “care-ethic.” However, one study suggests the care-ethic was not significantly higher in female participants who volunteered than in those who did not (Karniol et al 2003). Partly because Singer may erroneously identify behavior and concern, he insufficiently documents the claim that the nature of ethics has a gender component.
2. Singer claims, as R.M. Hare does, that ethics must be “universalizable,” that we should be “prepared to prescribe them independently of the role that we occupy” (174), taking the needs and desires of all other beings into account. However, Olson and Svensson (2003) show Hare used the term “universalizable” in only one sense: situations with identical properties merit identical moral judgments. Singer may misinterpret Hare and thus have little Hare support that moral judgments must take into account desires and needs of other beings.
3. On page 172, Singer claims that Christianity creates overwhelming guilt and causes the abandonment of ethics in some people because of unnecessary tension between self-interest and ethics when Christians emphasize “the denial of harmless bodily pleasures, especially sexual pleasures.” Yet the philosopher, St. Augustine, argues in his *Confessions* that sexual pleasures can often be harmful, in that they “overcast [one’s] heart so that [one] is unable to discern pure affection from unholy desires” (Second Book, ch.2). Singer does not address the possibility that moral rules of sexual purity protect people from some harm, such as blinding one’s reason, and he may therefore be unwarranted in dismissing the Christian emphasis on moral rules concerning sexuality.
4. Singer claims the Buddhist tradition is “a failure in social terms” (190) because in Japan, the ‘first precept’ of Buddhism is not upheld: sentient beings are used as food. However, when Singer judges Buddhism, he is assessing Japanese adherence to Theravada Buddhism, though the Buddhism that was introduced into Japan was a less-strict, less-purification-oriented Mahayana Buddhism (Burt 1982). In applying the standards of one form of Buddhism to another, Singer may unfairly reject Buddhist ethics.
5. Singer refutes the Kantian concept of morality by showing that horrific Nazi acts (e.g. acts of Adolph Eichmann) were merely a consequence of blindly adhering to duties for their own sake (184). However, Claudia Koonz studied the Nazi motivation for genocide and concluded in her book, *The Nazi Conscience*, that the Holocaust was a result of extreme racism that developed into violence, as German society saw the ethnic majority as morally righteous and denounced corrupting outsiders (Koonz 2005). Given other explanations for the Holocaust, it may be unfair for Singer to dismiss Kantian duty, based on Eichmann's claim of duty.

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## Sample Paper E

**Should the US pay for screening/treating all citizens for thyroid disease, because above-ground US nuclear-weapons testing has caused some of this disease?**

[This is an A paper, with only minor flaws, but needs newer references and line numbering.]

**Thesis:** At least 6 ethical reasons suggest the US should, at least, pay for thyroid screening/treatment for all females who were ages 1-18 any time between 1953-1962, the time of the 200+ above-ground nuclear weapons' tests, because the US likely is responsible for their ailments.

1. Because thyroid ailments of females who fit these criteria are, more likely than not, caused by US tests (ACERER 1998); the government knew the harm the tests would cause and suppressed it (ACERER 1998, p. 10); and people bear responsibility for their harm (Beauchamp and Childress 1993, pp. 387-388), government should pay for this screening/treatment.
2. Because the government lied, violating citizens' rights to know about the effects of the tests (Shrader-Frechette 2004), and because such lies increase duties of compensation to victims (Beauchamp and Childress 1993, pp. 307-316), the government should pay for screening/treatment for those in this group.
3. Because government delayed releasing NCI (1997) fallout report for 10+ years (Hoffman 1998, pp. 421-439), causing fallout victims to be outside the 6-year statute of limitations, so that citizens were deprived of their due-process rights, government should pay to screen/treat this group (Shrader-Frechette 2004).
4. The objection, that screening/treatment expense prohibits it (IOM/NAS 1998, p. ES-3), fails because government could screen only females 45-55 years old, since government bears greatest responsibility for these ailments (Beauchamp and Childress 1993, pp. 343-344), and this group needs the most protection.
5. The objection, that screening/treatment has minimal benefits since thyroid disease is rarely fatal (IOM/NAS 1998), fails because thyroid disease can induce devastating depression, for example, and those without health insurance deserve equal treatment (Beauchamp and Childress 1993, pp. 257-274).
6. The objection, that screening would cause greater harm – false alarm in healthy citizens (IOM/NAS 1998), is ethically flawed in ignoring rights to know and to compensation, and it falsely assumes the IOM has the right to make paternalistic decisions, even when people have been treated unfairly (Mill 1910).

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Advisory Committee for Energy-Related Epidemiologic Research (ACERER), HHS 1998. **Resolution with Regard to Exposures of the American People to Fallout from the Nevada Test Site.** Washington, DC, ACERER.

Beauchamp T., Childress J. 1993. **Principles of Biomedical Ethics.** New York: Oxford University Press.

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Institute of Medicine (IOM) 1998. **Exposure of the American People to Iodine 131 from Nevada Nuclear-Bomb Tests,** Washington, DC, National Academy Press.

Mill, J. S. 1910. **Utilitarianism, On Liberty, and Representative Government.** New York, Dutton.

National Cancer Institute (NCI). 1997. **Estimated Exposures and Thyroid Doses Received by the American People from Iodine-131 in Fallout Following Nevada Atmospheric Nuclear Bomb Tests,** NIH Publication 97-4264, Washington, DC, National Institutes of Health.

Shrader-Frechette, K. 2004. Comparativist rationality and epidemiological epidemiology. **Topoi** 23 (1): 153-163.

## John Ray, Paper S

[THIS SAMPLE PAPER IS AN "A" PAPER, HAS ONLY MINOR INCOMPLETNESS, SHOULD HAVE CITED THE DOWIE AND KOLATA SOURCES, AND NEEDS LINE NUMBERS AND NEWER REFERENCES.]

MIT's Mark Dowie has charged that New York Times Science writer, Gina Kolata, has a pro-corporate / anti-public health bias, as revealed in her stories on breast implants. Who is right?

**Thesis:** In at least five New York Times articles about silicone breast implants, Gina Kolata either ignores or minimizes corporate misconduct or serious public-health concerns, supporting Mark Dowie's charge that Kolata is biased.

1. Gina Kolata's September 18, 1995 New York Times article states that silicone-breast-implant manufacturers "agreed to a class action settlement for women who had implants" because they were "faced with a growing number of lawsuits." But Kolata did not mention that the manufacturers were losing such lawsuits because juries were finding (i) that silicone-breast implants were causing the serious illnesses and injuries alleged and (ii) that some implant manufacturers had affirmatively concealed the adverse results of animal testing (Dow Chemical Co. v. Mahlum).

2. Gina Kolata's September 18, 1995 New York Times article states that "recent studies have found no link between the implants and serious diseases . . . and many doctors believe they are safe." But Kolata did not mention numerous authorities and studies finding (i) that silicone is toxic in both animals and man (Busch 1994); (ii) that women with silicone- breast implants are at higher risk of developing cancer from killer-cell suppression (Campbell 1994); and (iii) that autoantibodies linked to autoimmune symptoms were found in 5% -30% of women with silicone-breast implants (Bridges 1993).

3. Gina Kolata's October 11, 2003 New York Times article states that implant manufacturers were "forced" to compensate women "who the implant makers argued were never sickened by the devices in the first place." But Kolata does not mention the hundreds of women with breast implants who reported symptoms of chronic fatigue (77%), cognitive dysfunction (65%), severe joint pain (56%), dry mouth (53%), dry eye (50%), hair loss (40%), and difficulty in swallowing (35%) post-implant surgery (Solomon G 1994).

4. Gina Kolata's October 19, 2003 New York Times article states that "most of the [F.D.A. Advisory Panel's] scientists agree that implants have not been linked to a risk of systemic diseases like cancer, lupus or chronic fatigue, or neurological problems." But Kolata does not cite the many studies showing that silicone-associated symptoms go away when the silicone implants are removed (Robinson 1995 and Cuellar 1995).

5. Gina Kolata's January 9, 2004 New York Times article mentions an Institute of Medicine report that found "no conclusive evidence linking the implants to serious diseases;" but Kolata mentions neither many other reports to the contrary, nor the Institute of Medicine's finding of "relatively high frequency of local complications that are unique to women with silicone implants" (IOM 1999).

### Bibliography

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Busch H. 1994. Silicone Toxicology. **Seminars in Arthritis and Rheumatology** 24 (1) suppl. 1: 11-7.

Campbell A, Brautbar N, Vojdani A. 1994. Suppressed natural killer cell activity in patients with silicone breast implants: reversal upon explantation. **Toxicology and Industrial Health** 10 (3): 149-154.

Cuellar M, Gluck O, Molina J, Gutierrez S, Garcia C, Espinoza R. 1995. Silicone breast implant – associated musculoskeletal manifestations. **Journal of Clinical Rheumatology** 14 (6): 667-672.

Dow Chemical Co. v. Mahlum, 114 Nevada Advance Opinion No. 155.

Institute of Medicine (IOM). 1999. **Safety of Silicone Breast Implants**, Washington DC, National Academy Press.

Robinson O Jr, Bradley E, Wilson DS. 1995. Analysis of explanted silicone implants: a report of 300 patients. **Annals of Plastic Surgery** 34 (1): 1-6.

Solomon G. 1994. A clinical and laboratory profile of symptomatic women with silicone breast implants. **Seminars in Arthritis and Rheumatology** 24 (1) suppl. 1: 29-37.

## Sample Science (S) paper

### Were US citizens harmed by exposure to Iodine from US nuclear weapons tests?

[This is an A paper but needs newer references, line numbers, and correcting minor flaws.]

**Thesis:** At least 6 reasons suggest many US citizens, especially children, were harmed by the nuclear tests.

1. Many US children were harmed – especially women now about 45-55 old and those who drank milk from backyard cows/goats – because such doses induce thyroid disease; many received lethal radiation doses, above 160 rads (IOM 1998, p. 42); 3.5 million US children received doses 50 times above annual background; and all doses are risky (US Congress 1998, pp. 421-439).
2. Although the National Academy of Sciences (IOM 1998) and National Cancer Institute (NCI 1997) minimize fallout-caused cancers, they underestimate them because they calculated only average risk from fallout, ignored the higher risks to children and to the medically sensitive 25 % of the population, ignored all non-cancer thyroid diseases/ deaths, and all effects not caused by I-131 (NCI 1999, pp. B-8 through B-29; Shrader-Frechette 2004).
3. Objectors say average fallout risk was low (IOM 1998), but other groups, like Physicians for Social Responsibility (Rush and Geiger 1997-1998, pp. 1-2), say I-131 cancers are 600-700 % higher than IOM says, and MIT scientists estimate global, US-fallout-caused fatal cancers at one million (Makhijani, Hu, Yi 1995).
4. Although objectors claim that I-131 fallout likely caused only several hundred thousand additional cancers, even IOM (1998, p. ES-2) says I-131 doses were “too uncertain” to be used in estimating risk (IOM 1998, p. ES-2); as a result, the I-131 risks are at best uncertain, not low.
5. Objectors say fallout had no obvious effects, but this ignores statistically significant increases in childhood leukemias and other cancers (US Congress 1998) and the fact that test-era radiation-risk estimates have been shown to be massive underestimates (Abbott and Barker 1996).

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Abbott A, Barker S. 1996. Chernobyl damage underestimated. *Nature* 380 (6576): 658-659.

Institute of Medicine (IOM). 1998. **Exposure of the American People to Iodine 131 from Nevada Nuclear-Bomb Tests**, Washington, DC, National Academy Press.

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Rush, D, Geiger, J. 1997-1998. NCI study on I-131 exposure from nuclear testing: a preliminary critique, **Physicians for Social Responsibility** 4 (3, Winter): 1-5.

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## FALL 2018, OUTLINE OF LECTURES AND ASSIGNMENTS, PH

Tues Date	Section of Course	Lecture	Assignment Due Today
Tues 8-21-18	<b>What Are PHP?</b>	(1) Overview of Course (2) ASPH, ch. 1: Public-Health Ethics (3) "Native Americans, Yucca Mountain, and DOE's 2016 assessment: A Public Health Catastrophe"	(1) Get NYT paper subscription; (2) Read ch. 1, ASPH; try to watch video early. (3) By noon Fri, put priority list of 3 S & 3 E topics (as listed on p. 3) in prof's box, 211 Malloy. Get emails of persons on right/ left.
<b>8-28-18 LAST DAY TO CHANGE CLASSES</b>			
8-28-18	<b>What Are PHP?</b>	(1) Lives at Risk from Envir. Toxins  (2) Tools of Analysis: Fallacies (3) Tools of Analysis: 5 Criteria	(1) Read ch. 1, S-F; <b>get 5 extra points by turning in 2 copies of paper P to prof's box at 211 Malloy</b> before 6 pm on 8-27-18; (2) check fallacies sheet on prof's website, under "course materials."
Tues 9-4-18	"	(1) Analysis of Ames and Gold  (2) Analysis of Epstein  (3) Environmentally Induced Illness	(1) Analyze Ames & Gold, Epstein, on website at class materials. (2) Read Epstein1-46, library reserve. (3) <b>Turn in all P papers.</b> (4) Class present P papers turned in.
Sun 9-9-18	1-3, 3-5, OR 5-7PM?	MAKE-UP ½ CLASS FOR WHEN PROF MUST LECTURE OUT OF TOWN	GO OVER P PAPERS. PROF CAN PROVIDE LUNCH/SUPPER <b>Class vote on time to have class.</b>
Tues 9-11-18	<b>Why People Do Not See PHP</b>	(1) Information Suppression & Spin:  (2) Threats to Rights to Know & Consent	(1) Read ch. 2, S-F.  (2) Read Epstein, 47-64, library reserve (3) Begin watching videos, due later (4) Go over remaining P papers in class.
Tues 9-18-18	"	(1) Private-Interest Science: Life Threats	(1) Read ch. 3, S-F; Epstein 65-76. (2) <b>At least 48 hrs. before class begins, email S papers to reviewers/prof &amp; also put hard copy of S in prof's box at 211 Malloy.</b> Turn in hard copies of S & R papers at class for entire class. (3) Class present S papers in order turned in.
Sun 9-23-18	1-3, 3-5, OR 5-7PM?	MAKE-UP ½ CLASS FOR WHEN PROF MUST LECTURE OUT OF TOWN	ASSESS S PAPERS. PROF PROVIDE MEAL <b>Class vote on time to have class.</b>
Tues 9-25-18	<b>Ethical Solutions</b>	(1) The Responsibility Argument (2) Evaluate duties to be PH activists	(1) Read chs. 4-5, S-F; (2) Go over remaining S papers.

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Tues  
10-2-16     **Ethical Solutions**

(1) Evaluate the foundation for human  
(2) Last date for prof to approve ex-cr papers, Topic 2

(1) Turn in all extra-credit, topic 1, papers by emailing them to prof & putting them in prof's box at 211 Malloy—both 48 hrs. before class begins. Bring hard copies for all to class.  
(3) Finish evaluating any S papers

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10-9-18     **NO CLASS**                    **PROF MUST LECTURE OUT OF TOWN**     **We made up class on 9-9-18 & 9-23-18**  
Watch 2 videos/do sheets (syllabus, p. 2)

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10-16-18     **NO CLASS**                    **FALL BREAK**                    **Read Singer, chapters 2-4; write paper E**

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10-23-18     **ETHICAL SOLUTIONS**             (1) Avoiding egoism and materialism             (1) Turn in **ALL E & R papers**----email E papers to reviewers/prof 48 hrs before class begins & put E papers in prof's box, Malloy, 48 hrs. before class begins.

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(2) Read Singer, chs. 2-4; Be ready to present E & R papers---with hard copies for entire class.

Singer, 2 (pro) \_\_\_\_\_  
Singer, 2 (con) \_\_\_\_\_

Singer, 3 (pro) \_\_\_\_\_  
Singer, 3 (con) \_\_\_\_\_

Singer, 4 (pro) \_\_\_\_\_  
Singer, 4 (con) \_\_\_\_\_

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10-26-18                    **LAST DAY TO DROP CLASS**

Tues  
10-30-18     **ETHICAL SOLUTIONS**             (1) Self-interest = altruism                    (1) Read Epstein 77-98 (library reserve);  
(2) Turn in 2 video sheets (syllabus, p. 2)  
(2) Continue Singer presentations             (3) Read Singer, chs. 7-9; and be ready to analyze and present E and R papers at class.

Singer, 7 (pro) \_\_\_\_\_  
Singer, 7 (con) \_\_\_\_\_

Singer, 8 (pro) \_\_\_\_\_  
Singer, 8 (con) \_\_\_\_\_

Singer, 9 (pro) \_\_\_\_\_  
Singer, 9 (con) not available

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Sun  
11-4-18                    **MAKE UP FOR CLASS MISSED IN DEC**                    **Go over/analyze any remaining Singer papers.**  
**WHEN PROF MUST LECTURE OUT OF TOWN**

Tues 11-6-18	"	(1) Purposeful Lives  (2) Singer Critique, Presentations	(1) Read Singer, chs. 10-11; be ready to analyze & present E, R papers. <u>Have papers with you.</u>  (2) Singer, 10 (pro) _____ Singer, 10 (con) _____ Singer, 11 (pro) _____
Tues 11-13-18	<b>P-HEALTH ISSUES</b>	<b>BASICS OF PUBLIC HEALTH</b>	(1) Read ASPH, chs. 2-3. (2) Tuskegee & 3rd-World Experiment (3) All extra-credit papers due 48 hrs before class (email and hard copy to prof's box at 211 Malloy). Bring copies for class members, due at class
11-20-18	"	(1) Privacy and Prevention (2) Present E, R. papers	(1) Read ASPH, chs. 5,6,7 (2) Authors present extra-credit papers at class
11-27-18	<b>PH Issues</b>	<b>Reforming Public Health</b>	(1) Read ASPH, ch. 9, S-F, ch. 6 (2) Authors present extra-credit papers at class
12-6-18	<b>PROF MUST LECTURE OUT OF TOWN</b>		<b>We made up class on 11-4-18</b>