

HNRS 120

Science and the Good Life

Spring 2016

Class Mtgs:	New 106	Instructor:	Daniel Robb
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Course Description:

Many key issues facing us as a society have important scientific or quantitative components. This leads one to ask: In what ways is scientific and quantitative literacy necessary to leading a good and ethical life in the 21st century? As science progresses, energy sources are becoming more or less expensive and available. Technological developments in biology and nanotechnology are enabling us to alter the capabilities of organisms in novel ways. How should our ethical thinking be adapted as these capabilities continue to develop? As we educate ourselves about the science behind these topics, we will engage with various ethical thinkers in an effort to clarify the relevance of scientific and quantitative literacy, and technological progress, to the good and ethical life in the 21st century. We will also engage with residents in Roanoke's Elderscholars program to share our findings and to benefit from their wisdom on leading an examined life.

Materials and Textbooks:

- A Writer's Reference, Hacker's custom Roanoke College edition.
- What Every Student Should Know About Preparing Effective Oral Presentations, by Martin R. Cox, Pearson, 1st edition (2006). ISBN-13: 978-0205505456
- Ethical Argument: Critical Thinking in Ethics, by Hugh Mercer Curtler, Oxford University Press, 2nd edition (2004). ISBN-13: 978-0195173161.
- Stat-Spotting: A Field Guide to Identifying Dubious Data, by Joel Best, University of California Press: Paperback, 2nd edition (2013). ISBN-13: 978-0520279988
- Energy for Future Presidents, by Richard Muller, W.W. Norton & Company (2013). ISBN-13: 978-0393345100
- Frankenstein's Cat: Cuddling Up to Biotech's Brave New Beasts, by Emily Anthes, Scientific American / Farrar, Straus and Giroux (2013). ISBN-13: 978-0374158590.

Intended Learning Outcomes:

1. Students will be able to formulate and evaluate arguments about ethical positions.
2. Students will be able to describe connections between the course topic and broader traditions of critical reflections on the good life.
3. Students will be able to give an effective oral presentation.
4. Students will be able to write a paper with a clear thesis, cogent argumentation, effective organization, and a minimum of sentence-level errors.
5. Students will connect course content to their lives and to communities beyond the classroom

Instruction in Oral Presentation:

A significant goal of HNRS 120 is instruction and practice in oral presentation. Delivering effective oral presentations depends on both (i) an understanding of sound principles for oral presentation and (ii) the opportunity to apply those principles by giving presentations and learning from the experience. To this end, you will read about and discuss sound principles of oral presentation, and view online examples of more and less effective presentations. You will begin with short individual informal reports to the class, and then progress to planning and delivering two longer group presentations. You will receive constructive feedback from your peers and from me for both group oral presentations. You will also create and deliver modified and shortened versions of these presentations for an audience consisting of participants in the Elderscholars program at Roanoke.

Teaching Methods:

The main method of instruction will be class discussion of the readings, with continued effort to explore and refine our thinking on the central inquiry questions posed in the course description. During each unit, you will be required to contribute to and read a collaborative class blog in response to the readings and class discussion. I will occasionally deliver brief lectures to present and clarify certain information from the readings. As part of your instruction in oral presentation, you will be required to give several brief oral reports during class, as a way of progressing to the longer group oral presentations and shorter oral presentations to Elderscholars participants. At the end of the semester, you will write an inquiry-focused term paper on an issue in the field of biotechnology and bio-engineering. Students will have the opportunity to give and receive peer reviews of both oral presentations and the rough draft of their term paper. You will also write a short reflection paper on your engagement with the Elderscholar residents.

Attendance Policy:

You are expected to attend every class; you must be in class to participate in the in-class activities which form part of the class participation grade. If you are going to be absent from class, I must be notified in advance. If 3 classes are missed without prior notification, then I will issue a warning; missing further classes will result in being dropped from the class with a grade of DF. You are accountable for all work missed due to absence. I will provide class materials for a missed class, but will not re-teach a missed class during office hours.

Feedback and Evaluation:

I will assign numerical grades to all your work. I may curve your final grades (upward), but otherwise you can expect to receive an “A” for 90-100, a “B” for 80-89, etc. You will receive rubrics describing how the oral presentations and term papers will be evaluated by me, as well as for use in the peer evaluations.

<u>Oral presentations:</u>	30% (4 @ 7.5% each)	<u>Term paper:</u>	20%
<u>Oral peer evals:</u>	10% (2 @ 5% each)	<u>Term paper (peer evals):</u>	10%
<u>Class blog entries:</u>	10%	<u>Brief oral reports:</u>	5%
<u>Participation/reading quizzes:</u>	10%	<u>Reflection on engagement:</u>	5%

Oral presentations will be researched and given in groups of 4-5 students. Each group will select its own topic, subject to my approval as appropriate. I will supply you with the grading rubric to be used in evaluating the presentation. The presentations should last for 30-40 minutes, with 10-15 minutes allotted for questions. Shortened and appropriately focused versions of the presentations will be given again to Elderscholars participants as part of their learning and enrichment program.

Oral presentation peer evaluations will be submitted by each student for one of the other groups' presentations. The evaluation should accurately but constructively assess the content and clarity of the presentation.

The 8-10 page term paper will be researched and written individually. You will be supplied with the grading rubric that I will use to evaluate the term papers. There will be a rough draft worth 1/3 of the term paper grade, and a revised (final) version worth the remaining 2/3 of the term paper grade.

Term paper peer evaluation: In the peer evaluation, you will provide constructive criticism on the content and style of the rough draft of another student's term paper.

Written blog entries: As a supplement and stimulus to class discussion, we will use a collaborative class blog. During each of the three course units, you will be required to contribute at least three (3) substantive comments to the class blog, for a total of nine (9) comments; more comments than this are welcome of course. Comments should actively engage the issue and previous comments; they do not need to be polished, but they should be understandable and grammatically correct. I will provide you with feedback on my evaluation of your blog contributions after each course unit.

Brief oral reports: Over the semester, each student will give at least two brief (1-2 minute) oral summaries of some aspect of the reading during class discussion. The oral reports will be evaluated for their clarity, and for their usefulness to the class discussion.

Class participation: You are expected to attend class consistently, and to be prepared having done the assigned readings. There will be one (unannounced) reading comprehension quiz during each unit, for a total of three during the semester. You will be expected to listen and engage actively in class discussion. In addition, you will have two meals with your presentation group and Elderscholars participants to discuss your presentation topic.

Reflection on engagement: You will reflect in 3-5 pages on how your experience giving the presentation and interacting with the Elderscholars participants compared with your prior expectations, as well as what you learned from the experience and from the Elderscholars participants.

Descriptions of principal assignments:

The first oral presentation will concern a current issue of societal and ethical relevance in which the interpretation of numerical statistics and data plays an important role. We will investigate several sample case studies of this type during the first unit. Your task will be to present the arguments on both sides of the issue, explain how data and statistics are being used to support each side of the argument, and comment on how the selection and presentation of numerical data affects the ethical and/or policy arguments surrounding the issue. You will also incorporate the opinions and insights that emerge from your first lunch with your Elderscholars group in this presentation. The presentation should last 30-35 minutes, with 10-15 minutes for questions.

The second oral presentation will concern a specific issue facing our nation and the world: the future of nuclear power following the disaster at Fukushima in March 2011. Each group will present an argument for the most ethical and strategic use of nuclear power moving forward for a specific country from this list : USA, France, Germany, Japan, China, and Russia. The presentation will draw on the scientific background of nuclear energy and power covered in the course, as well as incorporating principles of ethical argument. Again, you will incorporate the opinions and insights that emerge from your second lunch with your Elderscholars group in this presentation. The presentation should last 30-35 minutes, with 10-15 minutes for questions.

The presentations to the Elderscholars in class will be considerably shorter and less technical versions of the longer oral presentations, for a more general audience (the Elderscholars) who have not done the readings the class has done. These presentations should last 10 minutes, with 5 minutes for questions.

The written term paper will concern a topic in the area of bio-ethics and bio-engineering. I will provide a list of possible topics; you may also propose your own topic, subject to my approval. The paper should draw on the scientific background covered in the course, and should incorporate the principles of ethical argument explored earlier in the course. The goal of the paper, however, rather than to only present factual information, is to identify, explain and clarify the key questions which need to be addressed and/or better understood in order to reason clearly about the particular issue, and to form effective policy.

Policy on Late Work:

I will grade an assignment with a 10% lateness deduction if turned in by 5:00PM on the due date. Following that, assignments will receive a further 10% lateness deduction for each additional 24 hours that they are late.

Academic Integrity:

The College academic integrity policies are vigorously enforced. Although you are encouraged to work in groups on your homework assignments, all work turned in for a grade must be your own. Please familiarize yourself with the College's academic integrity policies.

Disability Support Services:

If you are on record with the College's Office of Disability Support Services as having academic or physical needs requiring accommodations, please meet with me during my regular office hours or schedule an appointment as soon as possible. We need to discuss your accommodations before they can be implemented.

If you believe you are eligible for accommodations but have not yet formally contacted Disability Support Services, please contact Disability Support Services, at 375-2247 or drop by the Center for Learning & Teaching in Fintel Library.

Class	Date	Class Topic	Reading	Due
		UNIT 1: Ethical argument and statistics		
1	Jan. 18	Introduction to the course		
2	20	Ethical argument: relativism and objectivism	Curtler 1: p. 1-39	
3	22	Principles of ethical arguments	Curtler 2: p. 40-75	
4	25	Structuring ethical arguments	Curtler 3: p. 76-127	
5	27	Justification of ethical claims; case studies	Curtler 4: p. 128-140	
6	29	Case studies in ethical argument	Curtler 5: p. 141-158	
7	Feb. 1	Uses and misuses of statistics	Best A,B,C	
8	3	Uses and misuses of statistics; Case study (gun control)	Best D,E,F; handout	
9	5	Uses and misuses of statistics	Best G,H,I	
10	8	Uses and misuses of statistics; Case study (cancer screening)	Best J,K,L,M; handout	Pres. topics
11	10	Topic workshop; effective oral presentation	Cox 1	E-scholars lunch I
12	12	Effective oral presentation	Cox 2	
13	15	Oral Presentations		
14	17	Oral Presentations		Evals
15	19	Oral Presentations		Evals
16	22	Oral Presentations		Evals
		UNIT 2: Nuclear power after Fukushima		
17	24	Fukushima	Muller 2	Evals
18	26	What is energy?; Nuclear power	Muller 3, 4	
19	29	Presentation I to Elderscholars		
20	Mar. 2	Climate change	Muller 5	
21	4	Alternative energy	Muller 6	Pres. topics
		Spring Break		
22	Mar. 14	Energy policy	Muller 7	E-scholars Lunch II
23	16	Review discussion		
24	18	Oral Presentations		
25	21	Oral Presentations		Evals
26	23	Oral Presentations		Evals
	25	Good Friday		
27		UNIT 3: Bio-engineering and bioethics		
28	28	Oral Presentations		Evals
29	30	Genetics 101	Handout	Evals
30	Apr. 1	Biotech/bioethics: Case study (Genetically engineered foods)	Handout	
31	4	Presentation II to Elderscholars		
32	6	Bio-engineering of organisms	Anthes 1	
33	8	Bio-engineering of organisms	Anthes 2	
34	11	Bio-engineering of organisms	Anthes 3	Reflection on engagement w/ Elderscholars
35	13	Bio-engineering of organisms	Anthes 4	Topic due
35	15	Writing Workshop		
36	18	Writing Workshop		Rough draft
37	20	Human enhancement	Handout	
	22	Bioethics in the future	Handout	Peer review
38	25	Final reflections		
	28			Final version