

University of Toronto Scarborough
Department of Physical and Environmental Sciences
ESTC35H3 Environmental Sciences and Technology in Society
Monday 9-11am, AA 204, Spring 2017

Instructor: Dr. Nicole Klenk
Office hours: EV360, Monday 1-4pm
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Course Description

In this course students will engage critically, practically and creatively with environmental controversies and urgent environmental issues from the standpoint of the sociology of science and technology (STS). This course will contribute to a better understanding of the social and political dimensions of the production and applications of environmental science and technology in society. The lectures and class discussions will cover the following topics: urbanization, climate change, nuclear energy, ecosystem engineering, biotechnology and genetically altered foods and other environmental issues that will be current 'hot topics' when the course is being taught.

Course Objectives

Students will: 1) Learn about different perspectives on the role of science and technology in addressing environmental problems; and, 2) Gain a better understanding of how science and technology is (or is not) used in environmental decision-making and the politics of knowledge production and technology use to solve environmental problems; and 3) Practice necessary critical thinking and writing skills.

Textbooks

Stewart Brand. 2009. Whole Earth Discipline. Penguin Books.
James Smith. 2009. Science and Technology for Development. ZED Books.

Class Attendance

Because of the nature of the material covered in class, class participation is essential.

Grading Scheme

Course Component	Points
Assignment 1: Rhetorical analysis	15 %
Assignment 2: Media analysis	15 %
Assignment 3: Essay	15 %
Facilitation of discussion on readings	15 %

Course Component	Points
Class Participation	10 %
Final exam	30 %

Facilitation of discussion on readings: Each student will facilitate a discussion on one of the readings once during the term. If two students are assigned the same reading, they will have to work together to prepare the class discussion. During the class we will focus on discussing one or two readings. For 20-30 minutes the discussant will give a brief presentation on their assigned reading (what is the main argument, what evidence is presented to support the argument, how is science used in the argument, how is the evidence presented, how compelling is the argument, what are the strengths and weaknesses of the argument). The discussant will facilitate a class discussion on the reading by having several questions prepared to keep the class talking and the conversation interesting. No laptop computers are permitted during the class discussion.

Participation: Your active and thoughtful participation will be examined throughout the term while others are lead discussants on readings. You are expected to have read the readings and to be able to respond to the questions put forward by the lead discussant.

Missed Term Work

Late assignments will be subject to a late penalty of 10% per day (including weekends) of the total marks for the assignment.

Handing in Your Assignment:

Please follow the University of Toronto procedure to be completed in order to be considered for academic accommodation for any course work such as missed tests or late assignments. Verification of Student Illness or Injury forms can be found on the Office of the Registrar's webpage (<http://www.illnessverification.utoronto.ca/getattachment/index/Verification-of-Illness-or-Injury-form-Jan-22-2013.pdf.aspx>).

Extension of Time

Students MUST submit a request for extension in ADVANCE of the deadline in order to receive a decision. For extensions of time beyond the examination period you must submit a petition through the Office of the Registrar.

<http://www.erin.utoronto.ca/index.php?id=6988>

Academic Integrity

The University treats cases of cheating and plagiarism very seriously. The University of Toronto's *Code of Behaviour on Academic Matters* (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences.

Potential offences in papers and assignments include using someone else's ideas or words without appropriate acknowledgement, submitting your own work in more than one course without the permission of the instructor, making up sources or facts, obtaining or providing unauthorized assistance on any assignment. On tests and exams cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

Accessibility

Students with diverse learning styles and needs are welcome in this course! In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff (located in SW302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronnto.ca

Communicating With You

The best way to communicate with me is during office hours. However, I also respond to student emails within two business days (Monday-Friday) and within business hours (9am-5pm).

Course outline

Date	Topic	Content/Practice
Jan 2	Introduction	Introduce you to the learning outcomes of the course
Jan 9	Science in society	News articles on Iron Fertilization/Documentary Burger and Gunlach 2016: discussant
Jan 16	Environmental problems and their solutions-the power of urgency <i>Workshop on rhetorical analysis</i>	Brand chapter 1 Moser 2010: discussant Niemann 2016: discussant Learn to recognize and critically assess arguments
Jan 23	Urbanization	Brand chapter 2 and 3, Smaje 2011 Rees and Wackernagel 1996: discussant

Date	Topic	Content/Practice
Jan 30	Nuclear Energy **Assignment 1 due	Brand chapter 4/Pandora's Promise Film Vainio et al. 2016: discussant Munster and Sylvest 2015: discussant
Feb 6	Genetic engineering	Brand chapter 5 and 6 Skogstad 2011: discussant Gerasimova 2016: discussant
Feb 13	Geoengineering <i>Workshop on media analysis</i>	Brand chapter 7: discussant Brand chapter 8: discussant Learn to search for media resources Example, see http://imgur.com/7xHaUXf
Feb 20	Family Day/Reading week	
Feb 27	Planet craft and science for development **Assignment 2 due	Brand chapter 9, Smith introduction and chapter 1 Stilgoe 2016: discussant
March 6	Hegemonies	Smith chapter 2 Shiva 1991: discussant Brooks 2011: discussant
March 13	Mundane science	Smith chapter 3 Kammen and Dove 1997: discussant
March 20	Science and technology for whom and for what?	Smith chapter 4 Wynne 1996: discussant Anadon et al., 2015: discussant
March 27	Environmental pragmatism and feral futures **Assignment 3 due	Smith chapter 5 An Ecomodernist Manifesto 2015: discussant Ramirez and Ravetz 2011: discussant

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Assignment 1: Rhetorical Analysis

Worth 15% of overall mark

Due in Dropbox, Monday, January 30, 2017

Length: 5 pages (double spaced, 12 point font, 1 inch margins)

Learning objectives

In this assignment you will demonstrate your ability to notice, explain and assess rhetorical features of a text, which will help you build your critical reading and thinking skills.

General directive

In this assignment, you are required to read, understand and conduct a rhetorical analysis of The Dark Mountain Project Manifesto (on Blackboard). A rhetorical analysis examines how and why an author chose to write a text the way he/she has. A rhetorical analysis explains the target audience of and the potential motivations for writing the text, and describes the persuasive qualities of the structure of a text and its compositional techniques and figures of speech. In your rhetorical analysis you should critically assess the means by which the author has tried to influence or persuade readers.

Steps

1. To begin your rhetorical analysis, construct a table of rhetorical features you will analyze and divide the table into two columns to help you distinguish between what the author wrote and why he/she wrote it in this way. For example, you may consider all or some of the questions in the worksheet below.
2. Develop your own thesis statement for your rhetorical analysis.
3. In your essay organize the rhetorical features you observed in a logical way. For example, you could start by identifying the author's main thesis, his/her purpose in writing this piece and his/her intended audience. Next, you could explain the rhetorical features of the text, the reason for their use and the extent to which they are effective writing strategies. Make sure not to simply summarize the rhetorical strategies the author uses often, but assess the extent to which they are compelling and effective.
4. Each paragraph should contain a strong topic sentence declaring the purpose of the rhetorical strategy you will discuss. The order of the paragraphs should be logical and support your thesis statement.

A rhetorical analysis is not a summary. In a rhetorical analysis you have to analyze and assess not only what an author wrote, but why he/she wrote it in a certain way.

Rhetorical Analysis Worksheet

What the author wrote	Why the author wrote this, and wrote it in this way.
What is the author's main thesis?	Why did the author choose this thesis to study?
What is the author's purpose? To inform, criticize, persuade? Some other purpose?	What seems to have prompted the writer to present this argument?
Who is the author's target audience? What academic discipline are they likely to come from?	Why did the author choose to write for this particular audience?
What is the author's background? What, if any, is the writer's history of work on this topic?	How does the author build his credibility with the target audience? In what ways does the author appeal to authority, emotion or logic? Does the author connect with the reader and if so, does this level of connection help the essay? Why?
Does the author consider opposing points of views? How does he present them?	What purpose does the presentation of opposing views serve?
What is the author's mode of writing? Description, definition, dialogue, cause/effect, compare/contrast, formal/informal?	Why did the author use this mode of writing? What features of the text make it a more persuasive argument? What parts are most appealing? Why?
Rhetorical devices	Does the author use rhetorical devices such as metaphor, simile, symbolism, humour, irony, parody? Why?

(Adapted from:
<http://writing.colostate.edu/guides/teaching/co301aman/pop7b13.cfm>; <http://tutorial.ncsu.edu/sites/tutorial.ncsu.edu/files/RhetoricalAnalysis.pdf>; http://www.english.lsu.edu/English_UWriting/English1001Teachers/Assignments/item34042.html)

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Assignment 2: Media analysis

Worth 15% of overall mark

Due in Dropbox, Monday, February 27 2016

Length: 5 pages (double spaced, 12 point font, 1 inch margins)

In this assignment I would like you to write a research report on media coverage of genetic engineering.

This assignment is meant to teach you skills in critical thinking, knowledge integration, research and writing.

You may choose to focus your assignment on Canadian media, or on another country's media, or international media.

Report structure:

Introduction: describe what is at issue with genetic engineering.

Methods: describe how you searched for relevant media coverage on this issue: explain the scope of your search; keyword strings; criteria you used to select the articles in your review.

Results: report what emerging themes and trends you found within the media coverage with respect to the thematic/substantive content of the articles; the tone of the article; the position(s) taken on the issue; the use of science to inform the article; the objective(s) of the article.

Discussion: discuss how the issue of genetic engineering is being communicated in the media; what message(s) is the general public getting about the risks and benefits of the technology; what environmental issue is genetic engineering meant to address; the governance of this technology (who is responsible for regulating it and how well or poorly is it being governed); who may benefit from this technology and who is at risk from this technology; the extent to which the media coverage on this issue based on science and how can you tell if the scientific sources are credible and legitimate?

Conclusion: summarize your results and discussion, and provide some thoughts on how the media might be affecting how the general public perceives genetic engineering—whether it is deemed appropriate or not as a technology to address environmental problems?

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Assignment 3: Essay

Worth 15% of overall mark

Due in Dropbox, Monday, March 27 2016

Length: 5 pages (double spaced, 12 point font, 1 inch margins)

In this assignment you must write an essay based on the two textbooks. **Compare and contrast** these two books AND **present your own perspective** on how the technologies that Brand proposes may or may not be solutions to addressing climate change in light of Smith's argument about science and technology for development. Please integrate ideas that we have discussed in class in your essay by referring to at least two of the additional readings we did in class.