Arguably, “science” is the dominant discourse of our time. Whether we are focused on technology, medicine, the environment, or public policy, science affects all our lives in profound ways, and it does this through written and digital texts. This course provides a brief overview of the field of Rhetoric of Science, Technology and Medicine (RSTM) by way of historical context and then focuses on understanding how the writing done in science works in a variety of different contexts.

How This Course is Organized

This course is an introduction to the rhetorical, historical and social analysis of science as a discursive and material practice. At least since Descartes in the seventeenth century, science grounded itself on the belief in objectivity and a corresponding belief in the transparency and neutrality of language. This inaugurated what John Dewey (1933) referred to as the “quest for certainty” and produced the enduring problem that Richard Bernstein (1983) calls the “Cartesian anxiety”—the anxiety about having certainty about issues that rarely admit of certainty. Think about climate change for example.

With the rise of postmodern theory and social constructionist positions in the human sciences, this faith in objectivity and a value free, non-rhetorical language has been widely rejected—at least in the humanities. Within rhetorical studies, scientific discourse is now understood as a discursive practice shaped by disciplinary and genre conventions, material conditions, and ideological commitments as well as a disciplined relationship to “external reality.” To argue in a facile way that science is nothing but a social construction usually ignores the fact that science and the scientific method have been extraordinarily powerful and productive. But to take that power and productivity at face value ignores questions of culture, of social power, of material practice, of discursive restrictions and exclusions, of language as the fundamental medium of scientific work. To Quote the Goblin in Harry Potter: “Its complicated.”

As a number of scholars have argued for some time now, we need what Bruno Latour calls a “realistic realism” to reground what he calls our non-modern science. Traditional, modernist, science and rhetoric ask epistemological questions about how science “hooks up” with a material world through language and how it authorizes and understands these procedures. These are essentially questions about knowledge, truth and certainty. We will read some of the contemporary response to this position that emerges from the general position called “new materialism” or “post-perspectivalism” though in a specific form.
In this age of materialist ontological inquiry and post-normal science, we might reverse DesCartes positivism and consider science as a remarkably successful, though not perfect, strategy for understanding and managing uncertainty. My own definition of science is “the management of uncertainty,” partly because of my particular interests. And I define “rhetoric of science” as how we do things in the world with words (J. L. Austin), graphs, visuals, games, models, scenarios and simulations. My intention is to make science and rhetoric more accommodating and productive traveling companions through the 21st century. As I have argued in the POROI essay on “Engaged Rhetoric of Science,” (8/22) connecting the work of rhetoric with the practice of science is essential in the age of the anthropocene.

The course is organized by four topics:

1) **Defining rhetoric of science.** What are its traditions? What are the topics and methods of the field? How do language, reality and knowledge connect?

2) **Scientific controversy and disciplinary change.** How does science change? How do scientific “facts” get established and defended? How does science communicate and cooperate across disciplinary and theoretical difference? How does science get work done in the presence of disagreement and difference?

3) **Science as a social, material semiotic.** How can we understand science as a cultural practice? How are science and materiality interconnected in ways that supersede postmodern critique of language as well as the modernist theory of reference? How does the rhetoric of science intersect with contemporary Science Studies and the field called the “new materialism”?

4) **Science, Risk and Citizenship in the Anthropocene Era.** How can rhetorical study help us understand the concept of risk, risk communication and the best ways to engage citizens in deliberations about risks in the anthropocene era? How can rhetoric help manage scientific uncertainty, public scientific controversy and social resistance to science in cases like climate change?

The organizing problems and the readings for this course are not all uniform, but they do have a trajectory. Some of the readings function mostly as a survey of the field and its analytic and theoretical history (points 1 and 2 above). These are the materials for the first five weeks of the semester and they are a broad survey of the field. Most of the work in the course, however, addresses a set of issues gathered around the idea that rhetoric needs to better understand post-normal science and its relations to citizens and policy makers so that we can participate in the social and political work of managing what Latour and others refer to as the impending “ecocide” of the biosphere (points 3 and 4 above). This is part of the emerging interest in the “public work of Rhetoric” (to echo Ackerman and Coogan) or of engaged rhetorical practice (to quote myself. Vanity. All is vanity). I will situate these questions in the general context of the anthropocene and of climate change specifically. The anthropocene is one of the major challenges facing both science and rhetoric of science, and it is an emerging interdisciplinary focus in our college. To address these issues, We will meet for three classes during the semester together with Prof. Greg Herbert’s “Anthropocene” seminar in GeoSciences and with Prof.
Schoenfeld’s seminar in “Ethics in the Anthropocene” in Philosophy. On these occasions, all three classes will share the same readings and meet on Friday at 4:00-6:00 in the seminar room in the Institute for the Advanced Study of Culture and the Environment (6th floor of the library). Our goal is to foster cross disciplinary understanding and initiate a conversation among graduate students interested in the anthropocene era and its challenges.

The course will be organized as a lecture/discussion in which all class members are expected to participate regularly and substantially. Course readings will include a large selection of articles and book chapters on RSTM and on the anthropocene as well as all or part of books by Richard Bernstein, Annemarie Mol, Bruno Latour, Evelyn Fox Keller, Leah Ceccorelli. You will also have a substantial written project that you design individually (see “Complete a Writing Contract” below). Course grades are based on your grasp of the readings and class participation and your writing project in equal measures. If at any time you want to know how you are doing, I’ll be happy to discuss your progress. And I assign “+” and “-“ final grades, e.g. “A-“ or “B+.”

**Learning Objectives**

By the end of the semester you will:

- Have a working definition of “Rhetoric of Science, Technology and Medicine” (RSTM) and an understanding of the field, its history and its future direction;

- Be familiar with the major theoretical positions in RSTM and the scholarship they produce;

- Possess enough background in the field to begin developing your own research agenda in RSTM including dissertation and thesis topics and proposals.

- Be familiar enough with the concept of the anthropocene and some of the rhetorical issues associated with it to pursue independent and/or interdisciplinary research on some aspect of the topic.

**Your work**

You have three assignments in this course:

1. **keep up with the reading and participate in class discussion:** As you will see below, there is a lot of reading in the course. (Like Tinky Winky’s bag or Hermoine Granger’s bag, the syllabus holds a remarkable amount of stuff.) Your first, largest and ongoing responsibility is to keep up with the reading and come to class prepared to discuss it at a fairly detailed level. I will lecture when necessary, but the classes will generally be open discussions of the readings driven by your questions and interests and by my own sense of what’s disciplinarily important. I expect everyone to come to class with questions about the readings: what does a passage mean? Where does an idea come from? What is the background for this concept, argument or problem? How
do we respond to this problem? Etc. I also want you to share insights, hunches and good ideas that you think of as you read. **I do not assign “A”s to students who do not participate substantially and regularly.** Participation is the “jacks or better” to open the betting in the course. And, obviously, if you are not in class, you aren’t participating. Anyone with more than three unexcused absences will be dropped or receive a failing grade for the course.

2. **present an essay or book chapter to the class:** Each of you will facilitate the class discussion of an article or part of a book once during the semester. Typically, this will mean that you prepare and present one of the readings I have put on the syllabus. When you do this, you should do some background work on the author or the topic/issue of the article so you can put the reading in a professional context, and then direct our discussion toward the key points of the article and how it articulates with other things we have read. I’d like you to circulate a succinct (**maximum of 2 pages**, single space) handout that captures your analysis and links the reading to other readings or criticism. Think of this as providing your colleagues materials they can use on the qualifying exam should they write about the article, author or chapter. Plan to present your materials and lead the discussion of this reading for 30 to 45 minutes so we have time to discuss the other readings scheduled for that class. Please do not simply read from a paper that you have handed out to the class. Finally, if you can connect the reading you are presenting to the other readings scheduled for that day so as to facilitate a coherent class discussion, that would be good.

I have selected readings with a fairly narrow set of interests and issues in mind. And that means that I have overlooked a great many important topics, ideas, and authors whose work may be of interest to some of you. If you want to bring in an essay for discussion that is not on the syllabus, that would be lovely. I don’t anticipate this happening often, but you may have something wonderful you want us all to read. We have very little open space on the schedule, but I’ll make room as necessary. You’ll need to talk with me well ahead of time if you want to bring in a new reading, and you’ll need to suggest where in the reading schedule it would logically fall. Also, you’ll need to scan the material and send it to me so I can post it on Canvas at least a week before the class discusses it.

3. **complete a writing contract:** I am open to any reasonable proposal for what you write in this course. The precise nature of your writing project will be negotiated individually so that you can each tailor the project to suit your scholarly strengths and interests, your place in the program and your research opportunities. And I encourage you to come talk with me about your interests and your ideas for a course writing project. I want an informal written proposal (**150-250 words**) from each of you laying out what you plan to write, why and when I’ll get it no later than **Wednesday, October 3**. I encourage you, however, to decide what you want to write and to submit the proposal as early as possible, the sooner, the better. If you choose to submit an analytic reading log, you need to make that decision right away and get started in the first week or two of the semester.

Here are a few suggestions for the kind of thing you might decide to do for this assignment. The point is for you to do serious intellectual work that fits into your individual plans and place in the program and discipline. As you review the options, recall what John Connor said to the Terminator: “you can mix them up too.”
You might write part of a dissertation or thesis chapter, or part of a dissertation or thesis proposal that is in the general field of the rhetoric of science.

- You might identify an ongoing scientific dispute (e.g. intelligent design, climate change, etc.), gather materials, and analyze the rhetorical activity involved using some of the conceptual apparatus from the course or some other rhetoric or theory course.

- You might develop an interdisciplinary topic between rhetoric and science concerning the issue of the anthropocene.

- If the field of rhetoric of science is completely new to you, you might choose to write some form of analytic reading log that synthesizes and organizes your understanding of some of the important theoretical issues we will take up, e.g. hyrids, reference, technoscience, risk, science policy. That might be a series of relatively short (3-5 page, double spaced) entries. There is a brief description of my understanding of an analytic and synthetic reading log posted on the Canvas site titled “Synthetic Reading Log.” If you choose to write an analytic reading log, you must turn in installments no later than a week after we finish the relevant readings; the fresher it is in both our minds, the better. **If you choose to do a synthetic reading log, you should start as early in the semester as possible since you can’t go back and “make up” logs on things that are more than a week in the past.**

- You might write a review of a new book or books in the area using your class readings as the basis for the review, and then send the review to the appropriate journal (this last would be required if you write a review).

- You might use some of the readings in addition to outside reading to develop a thesis of your own or a new position on a controversial topic.

- I encourage you to develop proposals and papers for conferences.

- You might develop a substantial bibliographic essay on a relatively well focused issue or problem in RSTM that you will use eventually as you develop a thesis or dissertation “literature review.” This sort of essay is best if it synthesizes and identifies major research trends or current research questions in the field.

- You might draft material on a specific case study that lends itself to the material and ideas in the readings.

- You might even write collaboratively or prepare a hypertext file.

For traditional articles, essays that develop an argument, Ph.D. students should aim at 15-20 pages for a continuous argument not counting Works Cited; MA Students 10-15 pages. Since reading logs are not continuous or new argument, they should be longer (in total). For reading logs Ph.D. students 20-30 pages, MA 15-20 pages. **Two Caveats:**

1) all papers and logs have to be about the materials and topics in this class.

2) You should submit reading log entries electronically and within a week of our finishing discussing the relevant readings so that the material is fresh in both your mind and mine.

**One piece of advice:** the more you link the reading logs to other readings in rhetorical theory, research methodology or rhetoric of science, the better sense of the field you’ll have. The latest date you can turn in written assignments is the day scheduled for the final exam.
Grades

Your final grade will be determined by your participation in the class discussions (40%) your class presentation (10%) and your written work (50%). I’ll repeat what appeared above: **I do not assign “A” grades to students who do not participate substantially and regularly; when you talk regularly and seriously about the readings, you learn more, you internalize the material better and you become a professional who can talk at conferences, at job interviews and at your oral exams.** (Being in class but never talking gets you a “C” on the 40% participation grade. Talking some gets you a B. Talking every class in significant ways gets you an A.) I’ll give you feedback on presentations and the associated handouts as soon after you do them as possible.

Texts


Hulme, Mike. *Why We disagree About Climate Change: Understanding Controversy, Inaction and Opportunities*.


Winsberg, Eric. *Philosophy and Climate Science*.

Schedule

**Wednesday 8/22: Rhetoric of Science’s Past and Future**


Herndl, C. “Introduction to the Symposium on Engaged Rhetoric of Science, Technology and Medicine.” POROI
Friday Aug 31 4:00-6:00 (LIB 645): Anthropocene Working Group class meeting. Prof. Greg Herbert (Geology) on What is the Anthropocene from a Scientist’s point of view. Reading to follow.

Wednesday 9/5 Philosophical and Rhetorical Positioning: Science as the “Management of Uncertainty”

Wednesday 9/12

Wednesday 9/19 Metaphors Matter
Ceccarelli. On the Frontier of Science. “Introduction” and “Conclusion”

Material/Semiotics and New Materialism

Wednesday 9/26
Latour, Bruno. We Have Never Been Modern. (WHNBM) Chapter 1.

Wednesday 10/3 (Writing contract due)
**Wednesday 10/10**


**Friday Oct. 19 4:00-6:00 (LIB 645): Anthropocene Working Group meeting: Martin Schonfeld (Philosophy)**

Prof. Schonfeld has given us three of his essays to read:
"American Disenlightenment, or Climate Change Made in USA,"
"The Shifting Patterns of Progress,"
"Confucianism, Climate, and Philosophy,"

**Friday 10/26 4:00-6:00 (LIB 645): Anthropocene Working Group meeting: Carl Herndl on the cultural and rhetorical challenges of the Anthropocene**

Blue, G. “Framing Climate Change for Public Deliberation: What Role for the Interpretive Social Sciences and Humanities?”

Hulme, M. *Why We Disagree About Climate Change*. “Foreword,” “Preface,” and Chapters 1: “The Social Meaning of Climate” (xxi-34)

**Wednesday 10/31 Science, Risk and Communication in the Anthropocene**

Hulme. *Why We Disagree About Climate Change*. Chapter 2 “The Discovery of Climate Change”


**Wednesday 11/7**
Hulme. *Why We Disagree About Climate Change*. Chapters 3 & 4

Winsberg *Philosophy and Climate Science*. Ch 3: “Models” and Ch 4: “Simulations” (26-54)

**Wednesday 11/14**

Hulme. *Why We Disagree About Climate Change*. Chapters 5, 6, 7, 10

Winsberg *Philosophy and Climate Science*. Ch 6: “Probability” (75-89) and Ch 8: “Decision” (108-129)

**Wednesday 11/21** class cancelled Thanksgiving

**Wednesday 11/28**

Haraway ‘Manifesto for Cyborgs’

A chapter (TBA) from *Modest Witness: Female Man™Meets Oncomouse @ First Millenium*

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**List of Important Journals in the field of RTSM**

**Primary Venues for Rhetoric of Science**

1. *POROI*
2. *Rhetoric Society Quarterly*
3. *Technical Communication Quarterly*
4. *Social Epistemology*
5. *Journal of Business and Technical Communication*
6. *Quarterly Journal of Speech*
7. *Argumentation*
8. *Rhetoric and Public Affairs*
9. *Written Communication*
10. *Argumentation and Advocacy*
11. *Science Communication*

**STS and Content-Area Specific Journals**

1. *Social Study of Science*
2. *Science Technology and Human Values*
3. *Public Understanding of Science*
4. *Philosophy and Public Policy Quarterly*
5. *Science and Public Policy*
Peripheral Rhetoric and Related Journals

1. College Composition and Communication
2. College English
3. Rhetoric Review
4. Philosophy and Rhetoric
5. Western Journal of Communication
6. Southern Communication Journal

What is a “Reading Log”? 

If the field of rhetoric and science studies is completely new to you, you might choose to write some form of analytic reading log that synthesizes and organizes your understanding of the readings. This is both a way to find your feet in a new literature (apologies to Clifford Geertz) and to concisely document the central ideas in our readings and the intellectual connections to other readings, issues or projects. In other words, a reading log is a strategy to document and organize what you learn as you work through a new intellectual project. While it is possible that you might organize your reading logs by individual books, a log on We have Never Been Modern and another on Pandora’s Hope for example, you should also try to synthesize across readings and with outside readings when possible. My syllabus is organized roughly by topic and conceptual field rather than by individual authors. It may be useful for you to work through and capture the core idea of one of the books we read; How does the critique of modernism organize the ideas in We Have Never Been Modern? Alternatively, you might address questions such as: what is the author’s main argument? Why is it important or useful? How does it connect with the rest of his/her work or with other work in the literature that is similar in methodology, topic, theoretical positioning? It is also useful to concentrate on specific issues or problems that run through the materials: How does the modern schism between science and society, between science and policy work? What are its consequences and why does all this matter? What is risk and how can we communicate risk in the anthropocene? I’d also expect that the logs will become more synthetic as the course progresses and you feel more comfortable with the material. Finally, the more you can integrate individual readings into the literature in the field or in rhetoric more generally, the better.

The logs should be analytic and synthetic. This is to say that though they probably will include summary, they should not be mere summaries. They may also (but do not have to) involve research and/or readings from another class or your thesis/dissertation. These logs must be exclusively critical and analytical, not a review or personal response. That is, they should
engage the material on an intellectual level of meaning, argument, disciplinary positioning, not on the level of whether you liked the material or not, whether you thought it was well written or not, or plan to ever use it or not. It should also be a (relatively) coherent essay, not a series of summary paragraphs. Finally, the logs can be of varying lengths but should add up to the suggested page range articulated on the syllabus.

You should submit reading log entries electronically and within a week of our finishing discussing the relevant readings. Writing and evaluating log entries is easiest when the material is fresh in mind. The longer you wait to write a log, the harder it is to write and the harder it is for me to evaluate it carefully and in any detail. This means that if you choose to submit a reading log, you must get started immediately; you can’t wait until later and go back and “catch up” on things that have passed. That creates trouble for both you and for me.