Metaphors are everywhere – from religion to sports to politics to therapy to love. But what about science?

Seventeenth century natural philosophers sought a language for the “new science” that would be transparent to meaning, a language free of the obfuscations of metaphor, analogy, and other devices of Renaissance poetry and magical and religious rhetoric. In the last four decades, however, metaphors have been transformed from the "victimizers of scientists" to "cognitive instruments" and inescapable elements of the ways scientists and the rest of us conceive and construct the world. More recently, the developing cognitive science area of the conceptual theory of metaphor has been arguing, with increasing empirical evidence, that metaphorical thinking is an unavoidable feature of our thought – including and especially in scientific and technical fields. Avoiding metaphors is impossible. Working consciously with them can foster creativity and innovation. Less conscious use can hamper both. Metaphors may play a special role in policy issues, shaping conflicting alternatives and blocking communication and compromise unless addressed explicitly. This work is just beginning to garner attention in STS.

Through a variety of historical case studies and theoretical statements focusing on the physical, biological, environmental, medical, and social sciences, philosophy, policy, and key technologies such as the clock and the computer, the seminar will examine and assess claims about the pervasiveness and necessity of metaphor in Western scientific and technical fields. Depending on the interests of enrolled students, the seminar may include a section on metaphor in science and mathematics education, where teachers have long understood the effectiveness of good metaphors.

Prerequisite: At least two STS core courses or seminars, or two appropriate graduate seminars in other fields, or permission of the instructor.

Readings include the following books, plus articles accessible online through the course website.

George Lakoff and Mark Johnson, Philosophy in the flesh: The embodied mind and its challenge to western thought (1999)
Brendon Larson, Metaphors for environmental sustainability: Redefining our relationship with nature (pb 2014; HB 2011)
Chad Lavin, Eating anxiety: The perils of food politics (pb 2013)
Recommended and/or reference books

George Lakoff and Mark Johnson, Metaphors we live by (1980; 2d ed with new afterword 2003)
Otto Mayr, Authority, liberty and automatic machinery in early modern Europe [clockwork and feedback metaphors] (1986)
Donald A. Schön and Martin Rein, Frame reflection: Toward the resolution of intractable policy controversies (1994)

Discussion participation (30%): Assigned readings will be organized in such a way as to facilitate class familiarity with a wide range of topics and approaches. All of you will complete reading assignments and participate knowledgeably in weekly synchronous and asynchronous discussions. By dinner-time Monday 24 hours before class, you will post notes and commentary on the assigned readings, and questions/issues for discussion in the next evening’s class. In addition, by the Friday following each Tuesday evening class meeting, you will post to the appropriate forum a paragraph-long evaluation of the class, which should address the following, as well as other relevant topics: in what ways the discussion went well or otherwise; how we all might work on improving the quality of subsequent discussions; topics or approaches we need to spend more time on; and, in the discussion area on the videoconferencing technology, how we might modify the setup of the rooms to increase the transparency of the technology.

Discussion leading (10%): The class discussion will be led by a group of you drawn from both sites who will function as a team, preparing together in advance, posting notes and questions to the discussion forums (as do all students), and conducting the synchronous discussion and its asynchronous follow up. You will lead discussions on a regular basis, with the frequency of responsibility depending on the enrollment. Assignments will be made a week or two in advance, on a volunteer basis so long as equitable rotation is maintained. Absence of a discussion leader without arrangement for a substitute will result in a "0" for the missed presentation.

Short papers: Two short papers, each 5 pp max (double-spaced with normal margins), deploying and/or analyzing various approaches to metaphor in scientific, technical, environmental, and medical fields/STS. Papers may be submitted electronically, as email attachments (Acrobat .pdf files, but NOT as MSWord documents).
• Paper 1 (20%) due during the week after class 4, no later than Friday 19 June. Topics TBA.
• Paper 2 (10%) a detailed prospectus for your research project, due in week 9, by Friday 24 July.

Research project (30%): An significant [~20pp plus notes, appendices, bibliography] investigation of the deployment of metaphor in some particular scientific, technical, medical, or environmental field or STS of interest to you, or in a particular document of professional interest. Many of the readings and guests will offer examples of approaches and frameworks. All of you will present your research to the class in the last two? class meetings (4 and 11 August), and should post materials for class study not later than Sunday before your presentation. Completed final project papers are due not later than Friday 14 August.

Face-to-face meetings: I am based in Blacksburg, but intend to travel to Falls Church at least twice during the course to teach there in person and to facilitate conversations with those of you based there about the course, research, and whatever else you may want to talk about, over coffee or food. Obviously I am available to meet with Blacksburg-based students most any time at mutual convenience.