

## Science, Technology, and Society: Core Seminar

HTS6743/LMC6743/PUBP6743

*Preliminary Fall 2015 Syllabus - as of August 18, 2015*

Course Meets: Tuesdays 6:05-8:55pm

Location: Hall 103

Convener: Anne Pollock, [apollock@gatech.edu](mailto:apollock@gatech.edu)

Office Hours: Skiles 360, Mondays 1:30-3 or by appointment

### Course Description

Science, Technology and Society (STS) - also called Science and Technology Studies - is an interdisciplinary field of study that seeks to understand how science and technology shape society and culture and how society and culture, in turn, shape the development of science and technology. This course explores key topics, debates, and theoretical perspectives in STS. Featuring guest lectures by faculty from across the Ivan Allen College of Liberal Arts, the seminar introduces students both to a wide range of STS topics and approaches and to faculty who do research in this area. It is also the core course required for the Graduate Certificate in Science, Technology & Society.

### Objectives

- ❖ To deepen awareness of social, cultural, and epistemic dynamics of science and technology
- ❖ To communicate in sophisticated ways about these issues, especially orally and in writing
- ❖ To become familiar with select foundational texts in the field of STS
- ❖ To explore key themes in STS from diverse disciplinary and interdisciplinary perspectives
- ❖ To be exposed to faculty from across the Ivan Allen College who do STS-related work

### Assessment

**3 components, equally weighted (each worth 1/3<sup>rd</sup> of final grade)**

#### 1. Class Participation

This course is designed as a seminar in which active participation from all students is necessary; the benefits of this class come from talking as much as listening. Students are expected to come to class prepared to discuss the readings in depth, and to devote engaged attention to guest lecturers and to classmates' contributions.

#### 2. Weekly Reading Responses

*Before* each class, each student writes an entry responding to the readings for that day on the blog section of T-Square. The weekly responses should be ~500 words each and should be posted 24 hours before class (by Monday at 6pm). They must: (1) demonstrate having done the reading, (2) reflect on how the reading relates to material earlier in the course and/or broader issues, and (3) note comments and questions that you would like to raise in class.

#### 3. Take Away Examination

Two Questions: one overview, obligatory; one specialized, chosen from many. 1500 words each.

### Important Notes on Readings:

- ❖ Readings listed are preliminary and subject to change as per the direction of the guest lecturers. Be sure to check T-Square to get any updated reading assignments.
- ❖ All readings will be available as PDFs or links on T-Square at least two weeks in advance of the class for which they are assigned.

**Attendance Policy:** Attendance is required.

**ADAPTS accommodation is available for students with disabilities:** <http://www.adapts.gatech.edu/>

**Honor Code:** Students must do their own work on blogs and exams. Late work will not be accepted.

**Week 1: 8/18****Introduction to the Course**

In-class film, "Island of Flowers," directed by Jorge Furtado (1989)

**Week 2: 8/25****The Social Construction of Truth - The Social Construction of Technology****Guest Lecturers: John Krige and Jenny Smith**

Bruno Latour, *Science in Action. How to Follow Scientists and Engineers Through Society* (Harvard), pp. 1-100.

Steven Shapin, *A Social Construction of Truth. Civility and Science in Seventeenth Century England* (Chicago), Epilogue.

Steven Shapin, "Rarely Pure and Never Simple: Talking About Truth," *Configurations* 7:1 (1999), 1-14.

Callon, Michel 1986. "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay." Pp. 196-233 in *Power, Action and Belief: A New Sociology of Knowledge*, edited by John Law. London: Routledge & Kegan Paul.

Pinch and Bijker "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other" *ibid*.

**Week 3: 9/1****Paradigms and Thought Styles****Guest Lecturer: Jen Singh**

Fleck, Ludwick. *Genesis and the Development of a Scientific Fact*. First published by Benno Schwabe, Basel, 1935; English translation by Bardley F. and Trenn T.J., University of Chicago Press, 1979. (Read: Forward by Kuhn and pp. 1-145).

Kuhn, Thomas S. "Scientific Paradigms." In *Sociology of Science* edited by Barry Barnes, 80-104. Middlesex: Penguin Books, 1972.

Singh, Jennifer. "No Single Gene for Autism: The Emergence of Genomic Styles of Thought." In *Multiple Autisms: Spectrums of Advocacy and Genomic Science*, 83-122. University of Minnesota Press: Minneapolis and London, 2016.

**Week 4: 9/8****Gender and Science****Guest Lecturer: Carol Colatrella**

Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies* 14.3(1988): 575-599.

Longino, Helen, and Evelyn Hammonds, "Conflicts and Tensions in the Feminist Study of Gender and Science," in *Conflicts in Feminism*. Eds. Marianne Hirsch & Evelyn Fox Keller. Routledge, 1990: 164-183.

Balsamo, Anne. "Teaching in the Belly of the Beast: Feminism in the Best of All Places," *Wild Science: Reading Feminism, Medicine, and the Media*. Eds. J. Marchessault, K. Sawchuk. Taylor & Francis, 2000: 185-214.

Traweek, Sharon. "Pilgrim's Progress: Male Tales Told During a Life in Physics," Chapter 3 of *Beamtimes and Lifetimes: The World of High Energy Physicists*, Harvard University Press, 1988, pp. 74-105.

Subramaniam, Banu. "Moored Metamorphoses: A Retrospective Essay on Feminist Science Studies" *Signs* 34. 4(Summer 2009): 951-980.

W. Faulkner and E. A. Kerr, "On Seeing Brockenspectres: Sex and Gender in Twentieth-Century Science." *Companion to Science in the Twentieth Century*. Eds. Dominique Pestre and John Krige. London: Routledge. 2003 Description: eBook at GT Library.

#### **Week 5: 9/15**

##### **Actor-Network Theory**

**Guest Lecturer: Yanni Loukissas**

Latour, Bruno. 1987. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, MA: Harvard University Press. 215-257.

Hutchins, Edwin. 1995. "How a cockpit remembers its speed." *Cognitive Science* 19: 265-288.

Mindell, David. 2008. *Digital Apollo: Human and Machine in Spaceflight*. Cambridge: MIT Press. 181-235

#### **Week 6: 9/22**

##### **Artifacts and Politics**

**Guest Lecturer: Nassim JafariNaimi**

L. Winner, "Do Artifacts Have Politics," in *The Whale and the Reactor* (Chicago: University of Chicago Press, 1986), pp. 19-39.

Additional readings TBD

#### **Week 7: 9/29**

##### **Philosophy of Technology**

**Guest Lecturer: Michael Hoffmann**

Marcuse, H. (1964). The New Forms of Control. In H. Marcuse (Ed.), *One-dimensional man*. Studies in the ideology of advanced industrial society. Boston: Beacon Press.

Feenberg, A. (1992). Subversive Rationalization: Technology, Power, and Democracy. *Inquiry-an Interdisciplinary Journal of Philosophy*, 35(3-4), 301-322. doi: 10.1080/00201749208602296

Latour, B. (1994). On technical mediation - Philosophy, sociology, genealogy. *Common Knowledge*, 3(2), 29-64.

Introna, L. D. (2007). Towards a post-human intra-actional account of sociotechnical agency (and morality). Retrieved from <http://www.nyu.edu/projects/nissenbaum/papers/posthuman.pdf>

#### **Week 8: 10/6**

##### **Justice**

**Guest Lecturer: Susan Cozzens**

Sen, A. (1992). *Inequality Reexamined*. Cambridge, MA, Harvard University Press. Introduction and Chapter One.

Cozzens, S. E. (1993). "Whose Movement - STS and Social-Justice." *Science Technology & Human Values* 18(3): 275-277.

Cozzens, S. E. (2007). "Distributive Justice in Science and Technology Policies." *Science and Public Policy* 34(2): 85-94.

Susan Cozzens, "Gender Issues in U.S. Science and Technology Policy: Equality of What?," *Science and Engineering Ethics*, Online First, May 2008.

Susan Cozzens in *Yearbook of Nanotechnology in Society, Volume 2: The Challenges of Equity, Equality, and Development*, edited by Susan E. Cozzens and Jameson Wetmore, Springer, 2010. (Chapter title: "Building Equity and Equality into Nanotechnology")

Jasanoff, S. (2002). "Science and the statistical victim: Modernizing knowledge in breast implant litigation." *Social Studies of Science* 32(1): 37-69.

Halfon, S. (2010). "Confronting the WTO: Intervention Strategies in GMO Adjudication." *Science Technology & Human Values* 35(3): 307-329.

Allen, B. L. (2007). "Environmental justice and expert knowledge in the wake of a disaster." *Social Studies of Science* 37(1): 103-110.

Edward Woodhouse, David Hess, Steve Breyman and Brian Martin, 2002. Science Studies and Activism: Possibilities and Problems for Reconstructivist Agendas. *Social Studies of Science* 32: 297.

### **Week 9 – Midterm Break – No Class**

### **Week 10: 10/20**

#### **Design**

#### **Guest Lecturer: Carl DiSalvo**

Bleeker, J. (2009) "Design Fiction: A Short Essay on Design, Science, Fact and Fiction." Available online at [http://drbfw5wflxon.cloudfront.net/writing/DesignFiction\\_WebEdition.pdf](http://drbfw5wflxon.cloudfront.net/writing/DesignFiction_WebEdition.pdf)

Ehn. P. (2008). Participation in Design Things. In *Proceedings of the Tenth Anniversary Conference on Participatory Design 2008* (PDC '08). Indiana University, Indianapolis, IN, USA, 92-101.

Callon, M. (2004). The role of hybrid communities and socio-technical arrangements in the participatory design. *Journal of the Center for Information Studies*, 5(3) Available online at [www.yc.tcu.ac.jp/~cisj/05/5\\_01.pdf](http://www.yc.tcu.ac.jp/~cisj/05/5_01.pdf)

Latour, B. (2009). From Realpolitik to Dingpolitik or How To Make Things Public. In F. Candline and R. Guinds (Eds), *The Object Reader* (pp. 153-164). London: Routledge.

Marres, N. and Rogers, R. (2000). Landscaping Climate Change: A mapping technique for understanding science & technology debates on the World Wide Web. *Public Understanding of Science* 9, no. 2: 141-163.

### **Week 11: 10/27**

#### **Technology, Innovation and Political Economy**

#### **Guest Lecturer: Steve Usselman**

Donald MacKenzie, "Marx and the Machine," in his *Knowing Machines. Essays on Technical Change*, Chapter 2.

Nathan Rosenberg, "Problem's in the Economist's Conceptualization of Technological Change," in his *Perspectives on Technology*, Chapter 4.

Donald MacKenzie, "Economic and Sociological Explanations of Technological Change," in his *Knowing Machines. Essays on Technical Change*, Chapter 3.

Richard R. Nelson and Sidney G. Winter, "Evolutionary Theorizing in Economics," *J. of Economic Perspectives*, 16:2 (2002), 23-42.

Henk van der Belt and Arie Rip, "The Nelson-Winter-Dosi Model and Synthetic Dye Chemistry," in Bijker, Hughes and Pinch, the *Social Construction of Technological Systems*, pp. 135-158.

Geof Bowker, "What's in a Patent," in Bijker and Law, *Shaping Technology/Building Machines*, chapter 2.

### **Week 12: 11/3**

#### **Topic: Disability and Accommodation**

**Guest Lecturer: Nathan Moon**

Readings TBD

### **Week 13: 11/10**

#### **Energy in Economic History**

**Guest Lecturer: Juan Moreno-Cruz**

Nathan Nunn (2009), "The Importance of History for Economic Development," *Annu. Rev. Econ.* 1:65-92

Nathan Nunn and Nancy Qian (2010), "The Columbian Exchange: A History of Disease, Food and Ideas" *J Econ. Perspectives* 24 (2): 163-188.

Juan Moreno-Cruz and M. Scott Taylor (2013), "Spatial Approach to Energy Economics" NBER WP 18908 <http://www.nber.org/papers/w18908>

Juan Moreno-Cruz and M. Scott Taylor (2012), "Back to the Future of Green Powered Economies" NBER WP 18236 <http://www.nber.org/papers/w18236>

Wrigley, E.A. 2010. *Energy and the English Industrial Revolution*. Cambridge, U.K.: Cambridge University Press.

Fernihough, A. and K.H. O'Rourke. 2014. "Coal and the European Industrial Revolution", NBER WP 19802. <http://www.nber.org/papers/w19802>

Nathan Nunn and Nancy Qian (2011), "The Potato's Contribution to Population and Urbanization: Evidence from a Historical Experiment, *Quarterly Journal of Economics*, 126(2):593-650

### **Week 14: 11/17**

#### **Values, Interests, and Commercialization in Academic Research**

**Guest Lecturer: Justin Biddle**

Richard Rudner (1953), "The Scientist Qua Scientist Makes Value Judgments," *Philosophy of Science* 20: 1-6

Heather Douglas (2000), "Inductive Risk and Values in Science," *Philosophy of Science* 67: 559-579.

Richard Nelson (2004), "The Market Economy, and the Scientific Commons," *Research Policy* 33: 455-471.

Justin Biddle (2007), "Lessons from the Vioxx Debacle: What the Privatization of Science Can Teach Us about Social Epistemology," *Social Epistemology* 21: 21-39.

Sergio Sismondo (2009), "Ghosts in the Machine: Publication Planning in the Medical Sciences," *Social Studies of Science* 39: 171-198.

Justin Biddle and Rebecca Kukla, TBD

**Week 15: 11/24**

**Science Fiction as STS**

**Guest Lecturer: Lisa Yaszek**

Darko Suvin, "Introduction," *Metamorphoses of Science Fiction: On the Poetics and History of a Literary Genre*.

Istvan Csicsery-Ronay, Jr. "Imaginary Science." *The Seven Beauties of Science Fiction*.

Donna Haraway, "Cyborg Manifesto."

Short stories TBD

**Week 16: 12/1: Wrap-up class**

**Take-home Exam due Tuesday, December 8, at 6pm**