**NATS 1760 (B): Science, Technology and Society**

**2016-17**

York University, Division of Natural Science, Faculty of Science

ACW 109

Tuesdays 4:30-7:20

**Instructor:** Professor Hélène Mialet

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**Office hours:** Wednesday,10-12.

Anthropologists have studied tribes from all over the world, classified the most exotic customs, taken pictures of and documented familial relationships and the most complex cults, they have described art, rituals and popular traditions, but what about what we believe to be our most reliable and efficacious source of knowledge: Science? In this class, we will question what constitutes the basis of “our modernity” by trying to understand how science is done—its dynamics, its organization, and how it penetrates our social fabric and transforms it. We will begin by briefly studying the philosophers of science upon which much of the sociology and anthropology of science is based. Then, we will analyze what sociologists of science say about the functioning of scientific institutions. Afterwards, we will examine how historians and sociologists (through the study of scientific controversies) and anthropologists (through the ethnographic study of laboratories) have analyzed the processes by which “scientific truth” is produced.  From here we will turn our attention to the representational practices—as well as the skills, gestures, instruments and genders of those—that make science. We will then examine the ways in which the design and use of technology (and artifacts themselves) embody important social assumptions. Are technologies, for example, gendered? What roles do users play in technological development?  What is an appropriate or ethical use of technology and what is not?  We will then consider and evaluate how technology impacts the ways we perceive and experience ourselves; the ways it influences how—and what—we think, how we work, our habits of consumption, our ways of interacting and assembling as a society, our notions of morality, and how we do politics.  We will end up by questioning the distinctions between science, technology, and society, and humans and non-humans (machines or animals). Indeed, are these ways of partitioning the world still tenable? And if not, so what? What kinds of questions, ideas, theories and methodologies are then made possible? Can we imagine a new ecology? A new science?  A new  politics? A new kind of morality?

Though we will be concerned with analyzing various theoretical perspectives in science and technology studies, the course will also be oriented around the study of specific concrete examples.

As a citizen immersed in the world of science and technology, this class is designed to give you tools, methods and concepts to grapple, question, and understand the world you are living in.

**Assessment:**

* Exam 1, in class, 18th of October—worth 20%
* Exam 2, in class, 29th of November—worth 20%
* Exam 3, in class, 14th of February—worth 20%
* Exam 4, in exam period, (April, 7-24)—worth 30%
* Exercises in class—worth 10% (1 exercise=1 point)

Full compliance with the York University policy of academic integrity is expected. You can find the information about academic integrity at:

http://www.library.yorku.ca/spark/academic\_integrity/index.html

**Required Material:**

Everything will be available on the Moodle Site (free).

**CLASSROOM ETIQUETTE: AVOID DISTRACTING OTHERS**

• Please think of others and avoid distracting them.

- What you think is quiet whispering can often be heard at the front of the room, distracting other students and even the instructor.

- Laptop and 'screen' use is fine if used to take notes or look up material, but alternative uses often distracts you and neighbours.

• So:

- Off-topic use of screens is OK *only* if done at the 'edges' of classrooms (back or sides) where your screen's less visible.

-TAs and instructors will enforce, and may even ask people to leave, if problems persist; classroom attendance is a privilege, not a right.

**Class Schedule:**

**September 13 Introduction: What is this Thing Called Science?**

**September 20 Science as Rational Knowledge**

 Readings for lecture:

K. Popper*, Conjectures and Refutations* (1969), 3-30.

**September 27 Science as a Social Institution**

 Readings for lecture:

R. K. Merton, “The Normative Structure of Science,” in B. Barnes (ed), *Sociology of Science* (1972), 65-79.

**October 4** **The Notion of Paradigm: Science as a Form of Life**

: Readings for lecture

T. Kuhn, *The Structure of Scientific Revolution* (1970), 1-51.

**October 11**: **Can we study ‘rationality’ and ‘irrationality’ in the same way?**

 Readings for lecture

 Harry Collins and Trevor Pinch, “Edible Knowledge: the Chemical Transfer of Memory,” in *The Golem* *What Everyone Should Know About Science* (1993), 5-25.

Harry Collins and Trevor Pinch, “The Sex Life of the Whiptail Lizard,” in *The Golem* *What Everyone Should Know About Science* (1993), 109-119.

**October 18 EXAM IN CLASS**

**October 25**  **Ethnography of a Laboratory: Literature and Machines**

Readings for lecture

B. Latour and S. Woolgar, *Laboratory Life: The Construction of Scientific Facts* (1979), 43-90.

**November 1 Gender and Science and Technology—1**

 Readings for lecture

E. Martin, “The Egg and the Sperm,” in B. Laslett, et al. (eds), *Gender and Scientific Authority* (1996), 323-339.

**November 8 Gender and Science and Technology—2**

 MOVIE (ROSALIND) FRANKLIN: THE RACE OF THE DOUBLE HELIX

 DISCUSSION

**November 15 Mixing Humans and Non Humans Together**

 Readings for lecture

B. Latour, “Mixing Humans and Non Humans Together: The Sociology of A Door-Closer,” *Social Problems* 35 (1988): 298-310.

**November 22**:  **Course Review**

**November 29:** **EXAM IN CLASS**

**WINTER BREAK**

**January 10 Distributed Knowledge**

 Readings for lecture

E. Hutchins, “How a Cockpit Remembers its Speeds”, *Cognitive Science* 19 (1985), 265-288.

**January 17 The Brain of Stephen Hawking**

 Readings for lecture

H. Mialet, “Stephen Hawking, *Hawking Incorporated,* And The Myth Of The Lone Genius,” Guest Blog: Commentary invited by the editors of Scientific American, *Scientific American* (December 31, 2014).

**January 24 Technology and War**

 Readings for lecture

H. Collins and T. Pinch, “A Clean Kill? The role of the Patriot in the Gulf War,” in *the Golem at Large* (2002), 7-29.

**January 31 Technology and the Self —I**

Readings for lecture

 E. Goffman, *The Presentation of The Self in Everyday Life* (1959). TBA.

**February 7 Technology and the Self —II**

 Readings for lecture

D. Nafus and J. Sherman, “This One Does Not Go Up to 11: The Quantified Self Movement as an Alternative Big Data Practice,” *International Journal of Communication* 7 (2013): 1-20.

M. Rukenstein, “Visualized and Interactive Life: Personal Analytics and Engagements with Data Double,” *Societies* 4:1 (2014): 68-84.

**February 14 EXAM IN CLASS**

**February 28 Technology and Sport**

 Readings for lecture

S. Rebolloso McCullough, “Body Like a Rocket: Performing Technologies of Naturalization,” *Thirdspace: A Journal of Feminist Theory and Culture* 9:2 (2010): 1-27.

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Movie about Dotsie Bausch Women’s Track Cycling Silver Medal 2012 Summer Olympics

**March 7 Big Data**

Readings for lecture

J. Agar, “What Difference Did Computer Make?” *Social Studies of Science*, 36:6 (2006), 869-907.

C. Anderson, “The End of Theory. The Data Deluge makes the Scientific Method Obsolete,” *Wired, (*06/23/2008).

**March 14 Climate Change**

 Readings for lecture

 TBA

**March 21 Entering into relationships with non-humans**

 Reading for lecture

Vinciane Despret, “Sheep Do Have Opinions,” 360-368.

Isabelle Mauz, Julien Gravelle, “Wolves in the Valley, On making a Controversy Public,” 370-379.

Jocelyne Porcher, Thierry Schweitzer, “About Pigs,” 380-383

**March 28** **CONCLUSION**

 **\***A film on the prequel simulation of the COP-21 in Paris

**April 4** **Course Review and Preparation for the Exam**

**Other Important Dates:**

Last day to enroll without permission of instructor: Sept. 21

Last day to enroll with permission of instructor: Oct. 19

Last day to drop course without receiving a grade: Feb. 10

Course withdrawal period begins: Feb. 11

**POLICY ON MISSED EXAMS AND ASSIGNMENTS; LATENESS**

**Exams:**

If you do want accommodation for a missed exam, you must notify the instructor within 24 hours of the missed exam, and provide appropriate documentation within one week of that missed exam.

For *medical* documentation only a current Attending Physician's Statement will be accepted, and that APS must be dated on the day of the exam. A simple 'doctor's note' is not acceptable.

If the exam was missed for *non-medical* reasons then formal documentation must be provided which provides the reason for missing the exam, contact information from the provider of that documentation (giving us the chance to check), and a specific statement that you weren't able to attend the exam on the scheduled day. If the exam falls on a Religious Observance Day of your faith you must submit a completed Examination Accommodation Agreement form at least 2 weeks in advance.

Course conflicts, work conflicts, or vacations **are not acceptable reasons for accommodation.**