Notes: The syllabus is subject to revision during the course of the semester. In case of revision, you will be notified and receive an electronic version on Moodle to replace the original.

Course Description: This course introduces you to the field of Sociology of Science and Technology. The topics covered in this course are representative, although not exhaustive. We address a variety of issues ranging from the norms and values of science, how scientific knowledge and fact are produced, gender in science, social construction of technology, the positive and negative sides of online gaming, to the current status of American and global science. The readings include both classics and more recent research. Some of the readings are theoretical, and others are empirical. Many of the readings cut across multiple disciplines, include history and philosophy of science.

Course Outcomes: At the end of the course, students will be able to

1) discuss the complex relationships between science and social forces as well as technology and social forces;
2) understand the methods used in conducting research in sociology of science and technology;
3) analyze the status of American science in the global context;
4) explain current issues and debates regarding science and technology in society from a sociological perspective;
5) improve skills in writing critical response papers and research papers and presenting their ideas to their classmates and a broader audience.

Requirements and Grading:

Attendance and Class Participation (16%)
Attendance is important to learning in that you may not participate in class discussion without attending to classes. In each class, you are required to sign up an attendance sheet. Approved absences typically include illness (with doctor’s notes), religious holidays, family and personal emergencies, and official representation of Stevens extracurricular events. Whenever possible, email me in advance about your absence. If you have more than two unexcused absences, a letter grade will be deducted from your final total (e.g., A would become A-, A- would become B+, and so on). If you have more than four unexcused absences, your final grade will automatically become an F. When you miss a class, it is your responsibility to make up what you have missed in class, but I will be happy to help you catch up. Talk to me after class or set up an appointment with me to discuss what you have missed.
In this class, students are expected to participate actively and fully in every class. Much of each class session will center around discussions. Therefore, make sure you do the readings before class and come prepared to discuss. The participation grade will not be based simply on the frequency of comments, but also upon the quality of your comments. For example, bringing up a point from the reading that was unclear or critiquing an argument in the reading is more involved (and of more quality) than merely reciting descriptive information in the text.

Full participation also means that you may not use your cell phone or other electronic devices in class in most of the time so that you can have a better learning experience. You may use your laptop at your presentation(s) or during group discussions. Occasionally, if you need to quickly check the reading, you can use your electronic devices, but limit your time of checking the readings—you should have finished your readings before class.

In some cases, students may have different opinions on certain issues. When such a conflict of opinions occurs, be respectful to your classmates who you do not agree with or do not agree with you.

**Discussion Questions and Short Responses (10%)**

In this class, every student is required to submit one discussion question on T-Square the night before class (meaning Sunday and/or Tuesday night at least 5 times in the semester. In other words, you are required to finish the readings and submit questions on at least 5 topics (any 5 weeks). Whenever time allows, we will discuss your questions in class, so make sure you submit your questions by 5PM the day before class. Every time, you can submit more than one question (e.g., two questions), but the second question will not count towards one more out of the 5 times. You may submit more than 5 times (5 weeks) during the semester, but the maximum credits you earn for this requirement is 10%. However, more submissions may count towards class participation.

Also, as part of this submission, you need to provide a short response to your own question (one or two paragraphs). Your response does not have to be thorough. It is more of a process of thinking than a clear illustration of your points, although the latter is highly welcome. Your response can also be background information, e.g., why you ask this question and why it is important for your classmates to consider. The purpose of the response is to make sure that you think about the question and make sure that it can stimulate class discussion. Do not submit a question if you are presenting the article. However, you can submit a question and response for the other reading assigned for the same week.

An alternative to submitting discussion questions regarding the reading is to submit a current event that is relevant to the topic of the week and explain how it is relevant or provide background information for further class discussion. For instance, for the week when we discussion the social construction of technology, you can submit an example of a current or emerging technology that you think is socially constructed—e.g., iPad, online shopping, etc., and provide your comments to support your thought. The purpose of this
assignment is to help you understand the readings better, stimulate your critical thinking skills, and relate scholarly discussions to real life events.

**Presentation and Discussion (10%)**
You are required to give one presentation—for a required reading and lead the discussion related to this reading in class. There are two components for this task: 1) presentation of the reading. The presentation itself should highlight important issues raised and analyzed in the article. You do not have to discuss all details but the important arguments, evidence, etc.; 2) discussion/evaluation/critique of the reading and supplementary materials. This component can be more focused than the presentation, and you can address/evaluate/criticize some elements in the article, such as theoretical frameworks, methodology, findings, research design, how the findings confirm or challenge findings in other readings, etc. You may also raise a few discussion questions. The supplementary materials can be a previous reading or an outside scholarly reading. The purpose of talking about supplementary materials that are relevant to the issue for that class is to further stimulate your evaluation/criticism of the reading and to enhance class discussion. You can find other scholarly materials on the library’s website or in other ways (I am happy to help). When discussing, draw the connections between the supplementary readings and the required reading. The discussion leaders are not required but encouraged to distribute a list of questions to facilitate discussion. You can do the presentation first and then your evaluation/discussion questions, or you may include the discussion questions throughout your presentation.

The purpose of the presentation and discussion is to allow each student to practice and improve his/her oral communication and critical thinking skills as well as providing you with an opportunity to contribute to your classmates’ learning. Each presentation and discussion should last about 25-30 minutes. Shortly after (or before) your presentation, make sure that you upload your materials (slides, notes, etc.) to T-Square for grading.

**Mini Presentation (4%)**
You are required to do one mini-presentation on a topic relevant to sociology of science and technology. It does not have to be related to any assigned reading. Instead, you can use external readings—in fact, newspapers, personal experience, etc. (and of course, research-based discussions) are all welcome! The point of this assignment is to share with your classmates your understanding and comments of an issue related to science or technology and society. It can be a historical or a contemporary event, but it is something that you love telling to your classmates! The mini presentation is about 10 minutes long. Feel free to use slides, audio/visual (not too long, though, since the whole mini presentation is only 10 minutes), or just use the white board. Shortly after (or before) your presentation, make sure that you upload your materials (slides, notes, etc.) to T-Square for grading.

**Reflection Paper (10%)**
In this class, you will need to finish one reflection paper during the semester. Your reflection paper is not a simple summary of the points made in the articles or chapters. It is your evaluation of the readings. After summarizing some main points discussed in the articles, provide your evaluation of these readings (it can be about any element of writing).
You need to briefly summarize two (or more) readings and discuss how they are connected, supplement each other, or challenge each other in your understanding of a specific issue related to science. In addition, you can evaluate the methodologies used in the readings, and any personal experience that echoes or challenges the authors’ findings or discussions is good.

Each reflection paper is about four pages of text (not including references or the cover page). The paper should be typed and double-spaced. You can choose to write the reflection paper on any reading, but submit a hard copy in the class when the main reading is discussed.

**Mid-term Exam (20%)**
The mid-term is a take-home exam. Students will need to answer a few essay questions. More detailed instructions will be provided when we get closer to the exam.

**Final Paper (30%)**
The paper should address issues that are relevant to the topics that we discuss in class. The final paper should address up to three subtopics that are relevant to a topic discussed in this class. For instance, you may further explore the topic of participation of women in science and engineering. Or you may analyze how gender is constructed and reinforced in new and emerging technologies.

The final paper requires you to do a real research project. You may choose to use any method that we discuss in the course, as long as it is appropriate for addressing your research question. More detailed instructions will be provided in advance. And you will need to submit a proposal (outline) for the final paper in advance to help you organize your thought and make it a doable project. I will let you know whether the topic that you propose is appropriate for the final paper or can be modified.

Make sure that you write down and sign the Stevens Pledge (Honor Code) on your papers and exams.

**Textbooks**: We do not have an assigned textbook. This class uses published journal articles and book chapters for more comprehensive understanding, and they are available on T-Square.
Weekly Schedule

May 18  Introduction
What is Sociology of Science and Technology?
What is science? What is technology? (no reading this week)

May 20  What is Special about Science?
Calvert, Jane. 2006 “What’s Special about Basic Research?” *Science
Technology & Human Values* 31(2):199-220.

May 25  Mertonian Sociology of Science—Stratification and Reward System
Merton, Robert K. 1957. “Priorities in Scientific Discovery: A Chapter in
the Sociology of Science.” *American Sociological Review*,
22(6):635-659.
January: 159(3810):56-63.

May 27  Post-Mertonian Sociology of Science—Scientometrics and science and
technology (S&T) policy; impact on economy and other aspects of
society
Connection between Researchers' Productivity and Their Co-
authors' Past Attributions, Including the Importance in
Entrepreneurship in the Life Sciences in UK and Germany.”

June 1  Sociology of Scientific Knowledge: The Strong Programme and the
Empirical Programme of Relativism (EPOR)
Case-Study.” *Social Studies of Science* 8(1):35-83.
Collins, Harry and Trevor Pinch. 2008. *Dr. Golem: How to Think about
Medicine*. University Of Chicago Press. (Ch. 8. “Vaccination and
Parents’ Rights: Mumps, Measles, Rubella (MMR), and
Pertussis”).

June 3  Laboratory Studies
Latour, Bruno and Steve Woolgar. 1986. Laboratory Life: The
Construction of Scientific Facts. (Ch. 4. The Microprocessing of
Doing, Park. 2007. Give Me a Laboratory and I Will Raise a Discipline:
The Past, Present, and Future Politics of Laboratory Studies in STS
279-296. In Edward J. Hackett, Olga Amsterdamska, Michael E.

**June 8**  
**Gender and Science**  

**June 10**  
**Documentary and Discussion**  
*Who Killed the Electric Car*  

**Midterm Due (no readings for today)**

**June 15**  
**Social Construction of Technology**  

**June 17**  
**Documentary and Discussion**  
*The Revenge of the Electric Car*

**June 22**  
**Actor-Network Theory in Science (Technosciences)**  

**June 24**  
**Science, Technology, Gender, and Race**  

**June 29**  
**The Current Status of American and Global Science**  
Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads (2011)
http://www.nap.edu/openbook.php?record_id=12984 (summary)

July 1  Technology and Young Adults

July 6  TBD

July 8  Documentary and Discussion
Digital Nation

July 13  Final paper presentation
Final paper due next week

July 15  Final paper presentation
Final paper due today