SOCI 325: Sociology of Science

Location Bronfman Building, room 422

Time Winter 2020, Tue and Thu 8:35–9:55am

Instructor Peter McMahan
(email: peter.mcmahan@mcgill.ca; (514)398-6839)

Office hours Wednesdays 1:30–3:00pm

Teaching Assistant Tay Jeong
(email: tay.jeong@mail.mcgill.ca)

Description

STS (an acronym for either “science and technology studies” or “science, technology, and society,” depending on who is asked) is a diverse field spanning research across the social sciences, humanities, and physical sciences. This course aims to give students a window into STS, adopting a specifically sociological viewpoint. The discipline of sociology has a distinctive perspective on the nature of knowledge and scientific institutions, and the course content will explore theories and applications of this perspective.

The course is structured as a hybrid of lectures and seminars. Most of the classes will begin with a short presentation by the instructor, but the bulk of the class time will be spent in small-group discussions. Group work will consist of structured discussions of the course readings in the context of broad themes and theories introduced throughout the semester. The success of the course therefore relies on students’ engaged readings of the assigned texts.

Expectations

Students are expected to (1) closely read the assigned texts, (2) participate in group discussions and worksheets, (3) submit three discussion questions, and (4) complete a final poster presentation. Each of these expectations is detailed below.

Reading

The assigned readings are the core of the course material, and students are expected to carefully and critically read each assignment before class. To
facilitate students’ engagement with the reading and to help prevent students from falling behind, we will use the online tool Perusall for all required readings. Perusall is a reading platform in which students annotate texts collaboratively alongside one another. More information on how Perusall works and how it is integrated into the course is available here.

To access Perusall through MyCourses, navigate to Content > Perusall (readings) > Perusall, and then click the “Open Link” button. This will take you to the Perusall site and automatically register you as a member of the course. If you are having any trouble accessing the readings through Perusall contact the instructor right away.

Readings will be graded as either complete (1 point) or incomplete (0 points). Student responses must demonstrate a thoughtful and thorough reading of the entire assignment to receive credit. At the end of the semester, the four lowest reading grades will be dropped from the assessment. Reading assessments will contribute 10% to the final grade for the course.

**Group discussions**
The large portion of class time will be devoted to small-group discussions and collaborative composition of discussion responses. In second week of classes, students will be assigned to groups of approximately four or five based on seating in the classroom. Groups will work together to provide responses to provided worksheets of discussion questions. The worksheets can be completed on an electronic device, to be submitted through MyCourses at the end of class.

The worksheets will be evaluated according to the following rubric:

- **✓ +** Responses demonstrate a nuanced understanding of the reading and link ideas from the text to themes, theories, and other topics from class. (100%)
- **✓** Responses demonstrate a basic understanding of the reading but may miss important implications or connections. (80%)
- **✓ -** Responses demonstrate a superficial understanding/engagement of the reading or contain numerous fundamental misunderstandings of the concepts. (60%)
- **0** Responses are cursory, or not submitted at all. (0%)

Regular attendance in class is a mandatory part of the course. Marks for
worksheet responses are given only to students who are present for their
group’s discussion, and absent students will receive no credit. At the end of
the semester, the lowest two discussion grades for each student will be
dropped (effectively giving each student two excused absences). Group
discussions will contribute 25% to the final grade for the course.

Discussion questions
Each student is responsible for submitting three discussion questions relating
to the readings over the semester. By the end of the second week of class,
random assignments will be sent to each student. If your assigned reading
creates a conflict for you, please contact the professor as soon as possible
to resolve the scheduling.

Discussion questions will be evaluated on a ten-point scale based on the
engagement and originality of the question. High-scoring submissions will
engage with more than just basic concepts and will elicit responses that go
beyond what is written in the text itself. For instance, the question might ask
for a critical engagement with a point made by the author, suggesting a
different interpretation of the reading; or a question might contrast a point
made in the text to another reading or topic discussed in the class. Students
should try to craft questions that will help others to think outside the reading.

Throughout the semester, the instructor will choose some submitted
questions to be included on the discussion worksheets described above.
Students whose questions are used in this way will receive an automatic
mark of 10/10 (100%) on their submission.

Discussion questions will contribute 25% to the final grade for the course.

Poster presentation
The last two classes will be used to host peer-evaluated ‘poster sessions’ for
final projects. Each student will produce a poster presenting a piece of
scientific research or technological output to an outside perspective. The
details of the final project will be posted shortly after the class begins.

In total, the final project will be worth 40% of each student’s grade, broken
down as follows: 5% for topic submission and group peer review (due
February 27); 30% for the poster and presentation (on April 7 or 9); and 5%
for peer evaluation of others’ posters (also on April 7 or 9).

Evaluation
The evaluation components for this course (described above), and the dates they are set for, are non-negotiable.

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<thead>
<tr>
<th>Component</th>
<th>Details</th>
<th>Weightage</th>
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<tbody>
<tr>
<td>Reading</td>
<td>See schedule for dates</td>
<td>10%</td>
</tr>
<tr>
<td>Group discussions</td>
<td>See schedule for dates</td>
<td>25%</td>
</tr>
<tr>
<td>Discussion questions</td>
<td>Assigned after week 2</td>
<td>25%</td>
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<tr>
<td>Final topic submission</td>
<td>February 27</td>
<td>5%</td>
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<tr>
<td>Poster presentation</td>
<td>April 7 and 9</td>
<td>35%</td>
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**Accessibility**

Students with disabilities in need of accommodation please contact the Office for Students with Disabilities (http://www.mcgill.ca/osd/, phone 514-398-6009). Students may also contact me directly—I will make every effort to accommodate individual circumstances.

**Academic integrity**

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see http://www.mcgill.ca/students/srr/honest/ for more information).(approved by Senate on 29 January 2003)

L’université McGill attache une haute importance à l’honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l’on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l’étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site http://www.mcgill.ca/students/srr/honest/).

**Language of evaluation**

In accord with McGill University’s Charter of Students’ Rights, students in this course have the right to submit in English or in French any written work that is to be graded. (approved by Senate on 21 January 2009)

Conformément à la Charte des droits de l’étudiant de l’Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l’un des objets est la maîtrise d’une langue).

**Grade appeals**
Instructors and teaching assistants take the marking of assignments very seriously, and we work diligently to be fair, consistent, and accurate. Nonetheless, mistakes and oversights occasionally happen. If you believe that to be the case, you must adhere to the following rules:

- If it is a mathematical error simply alert the instructor of the error.
- In the case of more substantive appeals, you must:
  1. Wait at least 24 hours after receiving your mark.
  2. Carefully re-read your assignment, all guidelines and marking schemes, and the grader’s comments.
  3. If you wish to appeal, you must submit to the instructor a written explanation of why you think your mark should be altered. Please note that upon re-grade your mark may go down, stay the same, or go up.

**Schedule**

**Introduction and themes**

The course will open with an introduction some of the unifying themes of the sociology of science. Readings will introduce some of the ways that both the doing of science (research and institutions) and the outcomes of science (findings and knowledge) are steeped in social processes. We will learn about the historical context of science as an institution, and see the way that this institution aligns with societal structures of power.

**Tue, Jan 7**

Lecture:
Course overview and introduction

Required:


**Thu, Jan 9**

Discussion:

**Theme**—Scientific outcomes are social

Required:

- Benjamin (2019), *Engineered Inequity: Are Robots Racist?*

**Tue, Jan 14**

Discussion:

**Theme**—Scientific research is social

Required:

- Goodyear (2016), *The Stem-Cell Scandal*

**Thu, Jan 16**

Discussion:

**Theme**—Science and power

Required:

Tue, Jan 21
Discussion:
Theme—History of science is a social history

Required:
- Shapin (n.d.), Science and the Modern World

Science as an institution
Institutional analysis represents one approach to the sociological study of science. Early functionalists like Merton examined the norms and culture of science to understand what made ‘good science’ work. The study of science was turned on its head in the 1960s and 1970s by research (like that of Kuhn) that took the content of science to be an institutional feature. Understanding the institutional features of science can illuminate certain structural barriers to participation in science by marginalized groups.

Thu, Jan 23
Discussion:
Scientific norms through a functionalist lens

Required:
- Merton (1973), The normative structure of science

Tue, Jan 28
Discussion:
Normal science, paradigms, and scientific revolutions

Required:
- Kuhn (1970), Anomaly and the Emergence of Scientific Discoveries and Crisis and the Emergence of Scientific Theories

Thu, Jan 30
Discussion:
Structural barriers to participation in science

Required:
- van den Brink and Benschop (2012), Gender practices in the construction of academic excellence: Sheep with five legs

Is knowledge social?
question the nature of scientific knowledge itself. What does it mean when STS scholars say that knowledge is socially constructed? Is there such a thing as objectivity, or are scientific observations only meaningful in a particular social context?

**Tue, Feb 4**

**Lecture:**
Social construction and the real

**Required:**
- Sismondo (2009), Chapter 6: The social construction of scientific and technical realities

**Thu, Feb 6**

**Discussion:**
The ‘strong programme’ and scientific anti-realism

**Required:**
- TBD

**Tue, Feb 11**

**Discussion:**
Feminist epistemologies

**Required:**
- Haraway (1988), Introduction
- Martin (1991), The Egg and the Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles

**Thu, Feb 13**

**Discussion:**
Scientific realism

**Required:**
- Hacking (1983), Introduction

**Studying laboratories**

Sociologists of science have a particular interest in laboratories as sites for ethnographic research. Observing scientists discussing theories, making sense of observations, and presenting findings allows a unique perspective on the social processes at play.

**Tue, Feb 18**

**Discussion:**
Tacit knowledge and experimental reproduction

**Required:**
- Collins (1975), The Seven Sexes: A Study in the Sociology of a Phenomenon, or the Replication of Experiments in Physics

**Thu, Feb 20**

**Discussion:**
Representing reality

**Required:**
- TBD
Tue, Feb 25

Discussion:
Participants beyond the laboratory — actor–network theory (ANT)

Required:
◉ Sismondo (2009), Chapter 8: Actor–network theory
◉ Callon (1984), Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay

Break

Tue, Mar 3

Spring break — no class

Thu, Mar 5

Spring break — no class

Science as power
Like any institution (especially one as well funded and generally well regarded as science), the practices and ideologies of science frequently align with existing structures of power in society. Whether one considers technologies of war, classifications of race, or justifications of rational action, the history of Western science is inextricably linked with the history of European colonialism.

Tue, Mar 10

Lecture:
Defining categories, focussing technology

Required:
◉ TBD

Thu, Mar 12

Discussion:
Science, colonialism, and postcolonial science studies

Required:
◉ TBD
Scientists and the public

The authority that scientific communication enjoys in public discourse can lead to conflict between scientists and non-scientists. Public debates take a particularly salient turn when scientific findings are at odds with popular beliefs. Moreover, the authoritative voice of scientific communication can be coopted by non-scientists to make more persuasive points.

Tue, Mar 24

Lecture:
Public trust, participation, and implicit values

Required:
 bölüm Winner (1980), Do artifacts have politics?

Thu, Mar 26

Discussion:
Science as justification for oppression

Required:
 bölüm TallBear (2013), Genomic articulations of indigeneity

Tue, Mar 31

Discussion:
Science denial

Required:
 bölüm TBD

Thu, Apr 2

Discussion:
Local knowledge

Required:
 bölüm Allen (2018), Strongly Participatory Science and Knowledge Justice in an Environmentally Contested Region

Poster presentations

Tue, Apr 7

Poster presentations — day 1

Thu, Apr 9

Poster presentations — day 2
References


