SOCL 325: Sociology of Science

Location  Arts Building, room 150 and online through Microsoft Teams

Time  Fall 2023, Tuesday and Thursday 2:35-3:55pm

Peter McMahan
Instructor (peter.mcmahan@mcgill.ca)

Office hours  TBA

Teaching Assistant  Sarah Badr

Syllabus  https://soci325.netlify.app

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, (4) complete peer evaluations, and (5) 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.

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.

Lectures
Typically, the first 15–30 minutes of the class will consist of a live-streamed lecture during which students (including any attending remotely) are encouraged to engage in class-wide discussion.

The slides will be made available before class, and a recording of the lecture (with an auto-generated transcript) will be available later the same day.

Group discussions
The large portion of class time will be devoted to small-group discussions and collaborative composition of discussion responses. After the second full week of classes, students will form groups of approximately four or five. Groups will work together to provide responses to provided
worksheets of discussion questions. There will be a total of 9 worksheets over the course of the semester, each spanning the content from multiple class periods. Exact due dates are available on the [schedule] below.

The worksheets will be evaluated according to the following rubric:

- **10 points** Responses demonstrate a nuanced engagement with the reading and link ideas from the text to themes, theories, and other topics from class.
- **8–9.5 points** Responses demonstrate a basic engagement with the reading but may miss important implications or connections.
- **5–7.5 points** Responses demonstrate a superficial understanding/engagement of the reading or contain numerous fundamental misunderstandings of the concepts.
- **0–4.5 points** Responses are cursory, or not submitted at all.

Marks for worksheet responses will be given to all members of the group. At the end of the semester, groups will perform peer evaluation (submitting evaluations is worth 2.5% of your total grade) that will adjust each participant’s discussion grade up or down by as much as 10%. Group discussions will contribute 30% to the final grade for the course**.

**Discussion prompts**

Each student is responsible for submitting three discussion prompts relating to the readings over the semester. By the end of the second full 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 prompts 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 prompt might ask for a critical engagement with a point made by the author, suggesting a different interpretation of the reading; or the prompt 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 20% to the final grade for the course.

**Poster presentation**

At the end of the semester, students will participate in a peer-evaluated virtual poster session. Each student will produce a digital poster presenting a piece of scientific research or technological output to an outside perspective. Further details will be provided in class.

In total, the final project will be worth 37.5% of each student’s grade, broken down as follows: 5% for topic submission and group peer review (due Tue, Oct 3); 30% for the poster (due Tue, Dec 5); and 2.5% for peer evaluation of others’ posters (due Fri, Dec 8).

**Evaluation**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Contribution</th>
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<tbody>
<tr>
<td>Reading</td>
<td>See schedule for dates</td>
<td>10% of final grade</td>
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<tr>
<td>Group discussions</td>
<td>See schedule for dates</td>
<td>30% of final grade</td>
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<tr>
<td>Discussion group peer evaluation</td>
<td>Fri, Dec 9</td>
<td>2.5% of final grade</td>
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<tr>
<td>Event</td>
<td>Due Date</td>
<td>Weight of Grade</td>
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<tr>
<td>Discussion prompts</td>
<td>variable</td>
<td>20% of final grade</td>
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<tr>
<td>Poster topic submission</td>
<td>Tue, Oct 3</td>
<td>5% of final grade</td>
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<tr>
<td>Poster</td>
<td>Tue, Dec 5</td>
<td>30% of final grade</td>
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<tr>
<td>Poster peer evaluation</td>
<td>Fri, Dec 8</td>
<td>2.5% of final grade</td>
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**Accessibility**

Students who need accommodation or who are having trouble accessing any aspect of the course may contact me directly. I will make every effort to accommodate individual situations, including religious, medical, or other personal circumstances.

Students with disabilities or otherwise in need of formal accommodation are encouraged to contact the Office for Student Accessibility & Achievement (formerly Office for Students with Disabilities: [https://www.mcgill.ca/access-achieve/](https://www.mcgill.ca/access-achieve/), phone 514-398-6009).

**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/](http://www.mcgill.ca/students/srr/honest/) for more information). (approved by Senate on 29 January 2003)

**Generative AI**

Students may use artificial intelligence tools for creating an outline for an assignment, but the final submitted assignment must be original work produced by the individual student or group alone.

**Lanugage 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)

**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.

Thu, Aug 31
Lectures:
- Course overview and introduction
  (html; pdf)

Discussion: (No group work)

Required:
- Hird (2011), Science, Technology, and the Sociological Imagination (due Sep 6)

Tue, Sep 5
Lectures:
- Theme—Scientific outcomes are social
  (html; pdf; vid)

Discussion: (In-class)

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

Thu, Sep 7
Lectures:
- Theme—Scientific practice is social
  (html; pdf; vid)

Discussion: (In-class)

Required:
- Goodyear (2016), The Stem-Cell Scandal

Tue, Sep 12
Lectures:
- Theme—Science aligns with power
  (html; pdf)

Discussion: (In-class)

Required:
- Gould (1981), Measuring Heads

Supplementary:
- “The Body Mass Index” (2021), Maintenance Phase (podcast) The Body Mass Index
- Daston and Galison (2010), Epistemologies of the Eye

Thu, Sep 14
Lectures:
- Theme—History of science is a social history

Discussion: (In-class)

Required:
- Wolfe (2018), Freedom’s Laboratory (Introduction)

Science as an institution
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 scientific knowledge itself to be an institutional outcome. Understanding the institutional features of science can illuminate certain structural barriers to participation in science by marginalized groups.

**Tue, Sep 19**

**Lectures:**
- Scientific norms through a functionalist lens

**Discussion:** Discussion worksheet 1 (due Fri, Sep 22)

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

**Thu, Sep 21**

**No class** (instructor absence)

**Tue, Sep 26**

**Lectures:**
- Normal science, paradigms, and scientific revolutions

**Discussion:** Discussion worksheet 2 (due Fri, Sep 29)

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

**Thu, Sep 28**

**Lectures:**
- Structural barriers to participation in science

**Discussion:** Discussion worksheet 2 (due Fri, Sep 29)

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

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**Is knowledge social?**

The social processes underlying scientific theories and discoveries call into 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, Oct 3**

**Lectures:**
- Social construction and the real

**Discussion:** (No group work)

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

**Supplementary:**
- Goward (2008), *Twelve readings on the lichen thallus: I. Face in the Mirror*

**Thu, Oct 5**

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

**Discussion:** Discussion worksheet 3 (due Fri, Oct 13)

**Required:**
- Bloor ([1974] 1991), *The strong programme in the sociology of knowledge*
**Tue, Oct 10**
**No class** (McGill Fall reading break)

**Thu, Oct 12**
**Lectures:**
- Feminist epistemologies

**Discussion:** Discussion worksheet 3 (due Fri, Oct 13)

**Required:**
- Haraway (1988), *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective*
- Martin (1991), *The Egg and the Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles*

**Tue, Oct 17**
**Lectures:**
- Scientific realism

**Discussion:** Discussion worksheet 4 (due Fri, Oct 20)

**Required:**
- Hacking (1983), *What is scientific realism?* and *Building and Causing*

**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.*

**Thu, Oct 19**
**Lectures:**
- Tacit knowledge and experimental reproduction

**Discussion:** Discussion worksheet 4 (due Fri, Oct 20)

**Required:**
- Collins (1975), *The Seven Sexes: A Study in the Sociology of a Phenomenon, or the Replication of Experiments in Physics*
Tue, Oct 24

Lectures:
- Representing reality

Discussion: Discussion worksheet 5 (due Fri, Oct 27)

Required:

Thu, Oct 26

Lectures:
- Participants beyond the laboratory
  - actor-network theory (ANT)

Discussion: Discussion worksheet 5 (due Fri, Oct 27)

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

Tue, Oct 31

Lectures:
- Poster session brainstorm and peer assessment

Thu, Nov 2

Lectures:
- Political economy of science and technology

Discussion: (No group work)

Required:
- Sismondo (2009), Chapter 17: Political Economies of Knowledge

Tue, Nov 7

Lectures:
- Science, colonialism, and postcolonial science studies

Discussion: Discussion worksheet 6 (due Fri, Nov 10)

Required:
- Adams (2002), Randomized Controlled Crime

Supplementary:
- Whitt (1998), Biocolonialism and the commodification of knowledge

Thu, Nov 9

Lectures:
- Science, race, and health

Discussion: Discussion worksheet 6 (due Fri, Nov 10)

Required:
- Poudrier (2007), The Geneticization of Aboriginal Diabetes and Obesity

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 for political action, the history of Western science is inextricably linked with the history of European colonialism.
**Tue, Nov 14**

**Lectures:**
- Standardization, bodies, and society

**Discussion:** Discussion worksheet 7 (due Fri, Nov 17)

**Required:**

**Supplementary:**

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**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.*

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**Thu, Nov 16**

**Lectures:**
- Public trust, participation, and implicit values

**Discussion:** (No group work)

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

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**Tue, Nov 21**

**Lectures:**
- Science and identity

**Discussion:** Discussion worksheet 8 (due Fri, Nov 24)

**Required:**
- TallBear (2013), *Genomic articulations of indigeneity*

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**Thu, Nov 23**

**Lectures:**
- AI, knowledge, and social data

**Discussion:** Discussion worksheet 8 (due Fri, Nov 24)

**Required:**
- Joyce et al. (2021), *Toward a Sociology of Artificial Intelligence*

**Supplementary:**
- Roberts (2020), *Your AI Is a Human*

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**Tue, Nov 28**

**Lectures:**
- Local knowledge

**Discussion:** Discussion worksheet 9 (due Tue, Dec 5)

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

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**Thu, Nov 30**

**No class (Monday course schedule)**
Tue, Dec 5

Lectures:

Science denial

Discussion: Discussion worksheet 9 (due Tue, Dec 5)

Required:

Harambam and Aupers (2015), Contesting epistemic authority: Conspiracy theories on the boundaries of science

Supplementary:

devrieze (2017), Bruno Latour, a veteran of the “science wars,” has a new mission

References


