DEPARTMENT OF ARTS AND EDUCATION

COURSE OUTLINE – WINTER 2019

SO3500 (A3): Sociology of Science and Technology 3 (3-0-0) 45 Hours for 15 Weeks

INSTRUCTOR: René R. Gadacz-Gould, Ph.D **PHONE:** 780.539.2831

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OFFICE HOURS: Daily; by appointment; drop-ins especially welcome

PREREQUISITE(S)/COREQUISITE(S): SO1000 or permission of the instructor

REQUIRED TEXT(S)/RESOURCE MATERIALS: (1) Anabel Quan-Haase, 2016 2nd edition, Technology and Society: Social Networks, Power, and Inequality. Oxford; (2) Arnold Pacey, 1984, The Culture of Technology. MIT Press; (3) Kirkpatrick Sale, 1995, Rebels Against the Future: The Luddites and Their War on the Industrial Revolution. Perseus Books; (4) James Barrat, 2015, Our Final Invention: Artificial Intelligence and the End of the Human Era. St. Martin's; (5) Vincent Mosco, 2017, Becoming Digital: Toward a Post-Internet Society. Emerald Publishing.

CALENDAR DESCRIPTION: The sociological study of science and technology integrating technical, social, economic and political empirics and theory. Examines the fundamental assumptions of science and technology and their role in addressing and impacting social and natural world issues. An overview of the ways social structures and processes shape, and are shaped by, scientific practice, technological innovation, and knowledge-building.

DELIVERY MODE(S): lectures, class discussion, group work, class presentations, written tests, written projects

COURSE OBJECTIVES: To introduce students to the sociological study of science and technology to answer questions like 'does technology control our lives' and 'is the idea of inevitable exponential technological progress justified'. To explore the central dichotomy between the ideal of science as rational and objective and the reality of scientific practice as social human endeavor. To examine how scientific revolutions and technological innovations have shaped economic, political and social life over the last four Industrial Revolutions. To explore issues relating to advances in IT, automation, AI, robotics, the Internet of Things, quantum computing, nano- and neuro-technology with respect to their anticipated 'disruptive' impact on our well-being, social relationships, quality of life, productivity, and growth.

LEARNING OUTCOMES: After taking this course, students will be able to define the basic tenets STS, SCOT, and ANT. They will also be able to identify how the processes of research, discovery, invention, innovation, and diffusion are influenced by competing knowledge claims and how scientific endeavors and technological innovations serve political and powerful commercial interests. They will be able to demonstrate how emerging 'disruptive' technologies have the potential to reinforce inequities and generate as-yet uncertain transformative consequences for social and cultural life.

TRANSFERABILITY: UA, AU, UC, UL, AF, MRU, GMU

***Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities**. Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide at http://transferalberta.alberta.ca/transfer-alberta-search/#/audienceTypeStep

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

EVALUATIONS:

Mid-Term Exam (20%)..... February 26
Final Exam (30%)..... TBA
Daily Google 'Tech Talk' (**2** x 5% = 10%)..... starts Jan. 15
Book Reviews (**3** x 5% = 15%)..... TBA
Research Project (25%)..... TBA

GRADING CRITERIA:

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	91-100		C+	2.3	67-69
A	4.0	86-90		C	2.0	63-66
A-	3.7	81-85		C-	1.7	60-62
B+	3.3	76-80		D+	1.3	55-59
B	3.0	73-75		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE/TIMELINE

(Winter 2019)

Please note that the topic sequence below is tentative and that topics and subject matter related to the main text (Quan-Haase 2016) are subject to change. ***Also note that chapter topics in Q-H will be heavily supplemented by material from many***

other sources **(*see my* 'Beginners Guide to Cool Technology Books' posted on Moodle for this course).**

January 3 – Course outlines and discussion of course requirements; meet-and-greet…

January 8, 10 – **Q-H**, Chapter 1: Science, technology, and the sociological imagination; socio-cultural evolution and complexity; models of social evolution (L. Morgan, K. Marx, L. White); technology and economics, production and growth (Rostow, Kuznets, Schumpeter, Kurzweil)

January **15**, 17 – Cont'd; **Q-H**, Chapter 2: history of technology; in-depth definitions of technology; brief survey of genres in technology studies - STS (science and technology studies), SCOT (social construction of technology), ANT (actor-network theory), and CDS (critical discourse studies) **January 15th, Google 'Tech Talks' start!**

January 22, 24 – Cont'd; **Q-H**, Chapter 3: theories of technology and society; determinism; instrumentalism; social constructionism; dependency; beliefs in progress

January 29, 31 – Cont'd; over-view of the contributions of the 'originals' **–** M. McLuhan, H. Marcuse, J. Ellul, M. Heidegger

February 5, 7 – Cont'd; introduction to the four industrial revolutions; the 1st (mechanization, steam power, water power); the 2nd (electricity, assembly line, mass production, analog)

February 12, 14 – Cont'd; the 3rd (automation, digitalization, computers, the internet); the 4th (robotics, AI, quantum computing, internet of things, autonomous vehicles, fifth generation wireless, nanotechnology)

February 19, 21 – **Reading break, no classes**

February **26**, 28 – Cont'd; **Q-H**, Chapter 5 & 6: technological design; technopoles; fundamental science; research & development; processes of discovery, invention, development, innovation, diffusion **Mid-Term Exam, Tuesday February 26th**

March 5, 7 – Cont'd; contextual issues – manufacture of needs; struggles with technology and the effects on labor, the labor force, and the idea of work – changes over time through the 4 industrial revolutions

March 12, 14 – Cont'd; **Q-H**, Chapter 4 & 8: gender and technology; technology and inequality; the 'digital divide'; technology and values, stakeholders, human rights – changes over time through the 4 industrial revolutions

March 19, 21 – Cont'd; **Q-H**, Chapter 9 & 10: the impact of technology on social relationships; the pace of technological change and its consequences – technological 'disruptions' and changes over time through the 4 industrial revolutions

March 26, 28 – Cont'd; **Q-H**, Chapter 11: science and technology as power; technology, surveillance and social control; the political economy of science and technology

April 2, 4 – Cont'd; **Q-H**, Chapter 12: ethical and moral dimensions of science and technological development; controversies; technological 'fixes'; 'big science' and 'big data'; social and cultural transformations

April 9, 11 – Cont'd; carry-over & unfinished business; wrap-up; final exam preparations

[Classes end Friday, April 12, 2019 – **Final Exam** date TBA]

Six Ways To Make This Course More Valuable:

1. **Participate, to engage your learning**
2. **Question, to enhance your learning**
3. **Read, to expand your learning**
4. **Reflect, to measure your learning**
5. **Apply, to transfer your learning**
6. **Innovate, to adapt your learning**

STUDENT RESPONSIBILITIES:

EXAMS: The *Mid-Term Exam* will consist of multiple-choice questions and short definition questions (20%), as likely will the *Final Exam* (30%).

SEMESTER WORK: Here's the basic breakdown:

(1) Daily Google 'Tech Talk' – choose a link from Google and discuss the article or item in the context of our textbook, lectures, and related readings (10 mins; submit printed story with your name). *A short introductory list of website links will be provided. You take it from there!*

(2) Book reviews – choose **3** of the 4 books listed for this course and hunt down and summarize, in your own words, published reviews of the book – from academic, popular, print, and electronic media sources. Were the reviews critical? Positive or negative? What did the reviewers argue about? Relate to our course material (e.g. definitions, theories, genres, and issues in science and technology studies).

(3) Research Project – choose an artifact from René's 'Black Box'! The Box contains technology items and/or fragments of items from the four industrial revolutions. *Instructions and details as the course progresses!*

What the semester course work entails will be discussed in more detail as classes get underway and as the course progresses. You will be provided with other instructions and more relevant information in class/on Moodle with plenty of lead time in regards to the Google 'Tech Talk' presentations, the book reviews, and the Research Project.

PLEASE NOTE:

A missed exam unfortunately cannot be accommodated - *unless* the situation is an unexpected personal or family emergency.

Any late work will result in an automatic loss of 5 percent (of the value of the work) PER DAY INCLUDING WEEKENDS, up to and including the day of a late submission, unless prior arrangements based on extenuating circumstances have been made. Documented personal or family emergencies will be accommodated. Example: if an

assignment is valued at 10%, one day late makes it 5%. Forgetfulness and/or poor planning won't be accommodated.

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the section on Plagiarism and Cheating in the College policy titled Student Misconduct: Academic and Non-Academic at (https://www.gprc.ab.ca/about/administration/policies/fetch.php?ID=68).

Instructors reserve the right to use electronic plagiarism detection services on written assignments. **Instructors also reserve the right to ban the use of any form of electronics (cell phones, Blackberries, iPods, tablets, scanning pens, electronic dictionaries, etc.) during class and during exams.**

**Note: all Academic and Administrative policies are available at https://www.gprc.ab.ca/about/administration/policies/