

**Division of Humanities  
Tentative Course Syllabus**

**Course Code:** HUMA 1622  
**Course Title:** Science, Technology, and Society: Historical and Cultural Approaches  
**Course Offered in:** Spring 2024  
**Course Instructor:** Liz P.Y. Chee

**Course Description:**

How science, technology, and medicine work in the present can be illuminated by a study of their pasts. This course is an introduction to those modern histories, presented as a series of carefully-chosen case studies. Students will come to understand how science, technology, and medicine are deeply entangled with societies and cultures. The course will discuss topics such as the invention and innovation of the telephone; the attempt to predict earthquakes; science and the environment; the modern survival of ‘traditional’ Chinese medicine; shifting ideas about robots; and how and why young people invented the personal computer, among others. By the end of the course, students will have a much clearer picture of how science, technology, and medicine are co-produced socially and culturally, and be able to apply those lessons to the world we live in now.

The course will consist of one weekly lecture, and a discussion section (i.e. tutorial group). Students will be split into two groups for the discussion section. It is important to attend both as this is not an online course.

**Course Intended Learning Outcomes (ILOs):**

	Course ILOs
1	Explain the concept of “Social Construction of Science and Technology” and apply it (e.g. in a case study).
2	Analyze important milestones and debates in the modern history of science, technology, and medicine
3	Critically reflect on the role of science and technology in their own lives and that of their societies.
4	Initiate, lead, and engage in discussion about the conjunction of science, technology, medicine, and society.

**Course Outline:**

**Division of Humanities  
Tentative Course Syllabus**

Week	
<b>(1) 2 Feb</b>	<p>Week 1: Introduction to the Course and STS as a Field of Study</p> <p>Introduction to the course; syllabus, assignments, grading, relevance of subject and why we should study it. Substantive lecture on what STS is (as a discipline, an historical methodology, and a set of insights into the world that we live in, including theories and relevant case studies). Also discussion of what students expect out of the course, and will be bringing to the course, including their baseline understanding of STS.</p>
<b>(2) 5-9 Feb</b>	<p>Week 2: What is Technology, and How Should We Study It?</p> <p>Humankind as a tool-using species. The modern term “technology” and its different manifestations. The idea that technology drives progress, and its critics.</p>
<b>(3) 12-16 Feb *CNY holidays fall on 12 and 13 Feb (no tutorial class 12<sup>th</sup> i.e. Monday)</b>	<p>Week 3: What is Science, and How Should We Study It?</p> <p>Understanding nature before modern science. The “Scientific Revolution”. Science and religion. The “Scientist” in history.</p>
<b>(4) 19-23 Feb</b>	<p>Week 4: The Telephone</p> <p>The strange invention of an uncanny device. Learning to use the telephone. Women and telephony. Cultural differentiation in telephone systems.</p>
<b>(5) 26 Feb-1 Mar</b>	<p>Week 5: Earthquakes and the Limits of Science</p> <p>The invention of seismology in Japan. Attempts to predict earthquakes and why they’ve failed. Does our understanding of nature have limits?</p>

**Division of Humanities  
Tentative Course Syllabus**

<p><b>(6) 4-8 Mar</b></p>	<p>Week 6: Inventing Efficiency: Scientific Management and Household Technologies</p> <p>Invention of 'efficiency' as a social ideal. How 'scientific management' changed the world as we know it, with special reference to the household.</p>
<p><b>(7) 11-15 Mar</b></p>	<p><b>Week 7: Robots and Cyborgs</b></p> <p>The idea of artificial bodies and intelligence in modern history. From Frankenstein to Artificial Intelligence. The Robot as attraction and horror.</p>
<p><b>(8) 18-22 Mar</b></p>	<p><b>Week 8: Mid-Term Exam, in-class. First Response Papers Due</b></p> <p>1 hr and 10 (or 15) min exam covering the first half of the course.</p>
<p><b>(9) 25-29 Mar</b> *Mid-term break 28 Mar-5 Apr (no tutorial class 28<sup>th</sup> i.e. Thursday, and no lecture 29<sup>th</sup> i.e. Friday)</p>	<p><b>Week 9: No Lecture (Mid-Term Break)</b></p>
<p><b>(10) 8-12 Apr</b></p>	<p><b>Week 10: Science and the Environment: Pesticides</b></p> <p>Rachel Carson, bird-watchers and the banning of pesticides. When scientific disciplines conflict, and role of interest groups in settling disputes.</p>
<p><b>(11) 15-19 Apr</b></p>	<p><b>Week 11: Citizen Technology: The Development of the Personal Computer</b></p> <p>Hackers and the ideal of 'computer liberation'. Apple and the first (wooden) PC. How the personal computer emerged from the youth movement.</p>
<p><b>(12) 22-26 Apr</b></p>	<p><b>Week 12: Domestic Technology</b></p> <p>Home Appliances. The connection between war technology and kitchen appliances such as the microwave. The infamous Kitchen Debate, The Bright Life and Japanese home inventions. The rise of Chinese domestic technology.</p>

**Division of Humanities  
Tentative Course Syllabus**

<b>(13) 29 Apr-3 May</b>	<p>Week 13: Conflicting or Complementary?: Biomedicine and TCM</p> <p>The presence of 2 different medicines/pharmacies in 21<sup>st</sup> century Asia and their cultural and political backgrounds.</p>
<b>(14) 6-10 May</b>	<p>Week 14: Synoptic Lecture and Review for Final Exam reflection</p> <p>A synoptic lecture reviewing what has been taught, and final in-class discussion of major themes, soliciting self-reflection on how these apply to contemporary issues. This will also serve as a review and refresher prior to the final exam.</p>

**Planned Assessment Tasks:**

Tutorial Participation: 15%

There are two tutorial groups scheduled outside of the lecture, which will meet once a week. Each week, a different panel of students will be chosen to lead the discussion by framing questions and issues based on the lecture and readings, but all students should participate. Your grade will be based partly on your performance on the panel, and partly on your engagement in classroom discussion.

Mid-Term Test: 25%

This will cover the first half of the course, and will take place in-class on week 8. It will require short responses identifying the meaning and significance of key words and concepts as well as images, from both the lectures and readings. I will flash these keywords and images sequentially on the screen and give you a few minutes to write about each one.

Final Exam: 35%

This will be taken outside of classroom hours. It will mostly cover the second half of the course, but some questions could also more generally cover themes related to the course as a whole. The format will be different from the mid-term, and will just involve

**Division of Humanities**  
**Tentative Course Syllabus**

written responses to written questions. The very last class (Week 13) will be a review session that will help you prep for the final.

Learning Portfolio: 25%

Students should write two 'response essays' of 400-500 words in the course of the semester. The first is due mid-term and the other at the end of the semester. Each response should focus on one lecture/reading of a particular week (your choice). The response should be a self-reflection on what has been learned from the lecture/reading of that week, and a reflection on how the case[s] relates to contemporary issues in the student's society, life, or study. Grading will consider grammar as well as the substance of the response. There is no need to include citations, but if citations are included, they are outside the word-count.

**Readings:**

1. A. C. Crombie (Ed.), Scientific change: Historical studies in the intellectual, social and technical conditions for scientific discovery and technical invention, from antiquity to the present (London: Heinemann; N. York, Basic Books) (symposium on History of Science, Oxford University, 9-15 July 1961).
2. Andrew Ede and Lesley B. Camack, A History of Science in Society: From Philosophy to Utility (Toronto: U. of Toronto Press, 2022).
3. Ulrike Felt et al, The Handbook of Science and Technology Studies (Cambridge, Mass: MIT Press, 2017).
4. Merritt Roe Smith and Gregory Clancey, Major Problems in the History of American Technology (Boston: Houghton-Mifflin, 1997).
5. Kerim Yasar, *Electrified Voices: How the Telephone, Phonograph, and Radio Shaped Modern Japan* (NY: Columbia U. Press, 2018).
6. Edmund Russell, *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring* (Cambridge, UK: Cambridge U. Press, 2001).
7. Sean Lei, *Neither Donkey nor Horse: Medicine in the Struggle over China's Modernity* (Chicago: U. of Chicago Press, 2014).
8. Ruth Aylett and Patricia A. Vargas, *Living with Robots: What Every Anxious Human Needs to Know* (Cambridge, MA: MIT Press, 2023).

**Division of Humanities**  
**Tentative Course Syllabus**

9. William Aspray and Martin Campbell-Kelly, *Computer: A History of the Information Machine* (NY: Basic Books, 2013 [Third Edition]).
10. Mirjam de Bruijn et al, *Mobile Phones: The New Talking Drums of Everyday Africa* (Leiden: Africa Studies Center, 2009).
11. Richard P. Appelbaum, et al. *Innovation in China: Challenging the Global Science and Technology System* (Polity Press, 2018).
12. Hugh Thomas, *Innovation in China: A Strategic Management Casebook* (World Scientific, 2022).
13. Xiaolan Fu, et al. *The Oxford Handbook of China Innovation* (Oxford U Press, 2021)