

HON221: Social Implications of Emerging Technology

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Scientific discoveries by themselves rarely create change. It is the confluence of old and new technologies with old and emerging social needs that creates change. ... Thus, the problem for prediction is not only to track the advances of nanotechnology, but also to track other advances and changes in society at the same time. Visionaries and science fiction writers have bold visions, but researchers must also take a role in producing a useful understanding of possible societal directions.

--J.S. Carroll, MIT

Course Overview: This course will revisit conversations begun in HON121: History of Emerging Technology and HON125 The Science & Art of the Small with a specific emphasis on the social implications of emerging technologies. This course explores the social implications of technology and the production of scientific knowledge in educational, legal, ethical, cultural, and industrial contexts. Each segment of the course builds upon concepts introduced in the first two courses.

Course Objectives: At the conclusion of the course, students will be expected to be able to:

1. Discuss relationship of technology and science in social and cultural contexts;
2. Analyze public perceptions of emerging technologies and potential failures/risks;
3. Apply basic sociological concepts of social networks, knowledge systems, and social practice;
4. Demonstrate a basic understanding of qualitative methods of inquiry;
5. Develop an individual perspective on the value of science and technology;
6. Formulate a coherent, written analysis of social impacts of emerging technology that incorporates appropriate documentation of sources.

Assessment & Evaluation: Grades will be assigned for each assignment according to the following designations. Further clarification of the meaning of each grade level will be debated in class.

A= Exemplary

B= Meritorious

C=Satisfactory

D=Partially Complete or only

Partially Satisfactory

E=Unsatisfactory

Course Requirements

Social Theory Essay 20%: An exploration of ideas regarding emerging fields of scientific expertise. This essay will build from a series of one page reflections on guided readings regarding the social construction of “scientific order” and on the social practices that lead to the development of disciplinary “fields”. Students will be asked to develop their ideas from their reflections into a 5-7 page original essay.*

Social Impacts Research Paper 30%: An investigation of the social implications of technology based on themes identified by National Science Foundation. Students will first submit a research proposal including a bibliography of proposed sources. A poster presentation of each student’s report will be shared with the class as part of class discussion in October (students must sign up for presentation dates at the end of September). Final drafts of full reports (8-10 pages) are due in mid November.*

Current Events in Nanotechnology Class Discussion (CED) 10%: Each student will identify a current event in the world of nanotechnology as a topic for class discussion. In preparation, the discussion leader will research the topic; provide handouts to the class of pertinent details, definitions, and sources of information; and develop a set of guiding questions.

Group Inquiry Project 20%: An empirical investigation of either undergraduate education in the area of emerging technologies OR the development of scientific method in the lab sciences. Students will work in teams to develop a research question, analyze primary documents, collect data from the public using social science research methods, and produce either an intervention or proposal for further research. Each group must submit a 4-5 page research summary of their project.

Class Participation 20%: In addition to regular class attendance (I will neither excuse nor condemn absences as long as class participation is not affected), class members will prepare for class by completing all reading and writing assignments, contribute to out-of-class activities, and attend colloquia related to the Umbrella Program on Nanotechnology.

***Exemplary papers will be reviewed by the class for submission to *News From the Bottom*, an on-line student journal on nanotechnology or similar publication.**

Course Readings (an evolving list to be supplemented by guest speakers & current articles)

- Bijker, Wiebe, Hughes, Thomas, & Trevor Pinch (Eds.) (1999) *The Social Construction of Technological Systems*. Massachusetts Institute of Technology Press. (SCOT)
- Mihail C. Roco & William Sims Bainbridge, "Social Implications of Nanoscience and Nanotechnology" (March 2001) available at <http://www.wtec.org/loyola/nano/societalimpact/nanosi.pdf>. (NSF)
- Subscribe to Meridian Nanotechnology and Development News
- Additional readings will be available on e-reserve or through links to online documents.

Course Schedule

Class Dates	Tuesday	Thursday	UPoN this Week
29th & 30th	SCOT 9-51, NSF SIR 1-20	Prelim. results of "Ultimate" Research Project Due	
Sept. 5&6	SCOT 51-106, NSF As assigned, Current Events Discussion (CED) 1	Turn in Summaries of Last Semesters Research, Reflections due each Thursday, CED 2	Introduction to UPoN/Nano-Scale Research Lab. Tour 6:30pm
Sept. 12&13	Nespor Chapters 2&3, CED 3	Participant Observation, Reflection Due, CED 4	
Sept. 19&21	SCOT 107-158, Social Impacts Paper Proposals Due	Ethnographic Interviews, Reflection Due, CED 5	Biomimicry with Dr. Sitti from Carnegie Mellon 3:30pm 9/21, Copenhagen at Natasha's 7:00 9/21
Sept. 26&28	SCOT 159-190, NSF As Assigned, CED 6	Group Research Proposals Due, Reflection Due, CED 7	Copenhagen at Natasha's 7:00, 9/28
Oct. 3&5	SCOT 191-242, NSF As Assigned, CED 8	Data Collection, Reflection Due, CED 9	Fall Break
Oct. 10&12	SCOT 243-306, NSF As Assigned, CED 10	Data Collection, Reflection Due, CED 11	
Oct. 17&19	SCOT 307-349, NSF As Assigned, CED 12	Group Research Preliminary Analysis Due,	Creativity Seminar 6:30pm 10/12

Oct. 24&26	Social Theory Essay Draft Due, NSF As Assigned, CED 13	CED 14 (Schedule appointments for writing review)	
Oct. 31&2	CED 15	No Class	Haunted House! NO CLASS THURSDAY
Nov. 7&9	Social Theory Revisions Due, CED 16	Group Research Presentations	
Nov. 14&16	Social Impacts Drafts Due, Group Research Presentations	No Class	Aqueducts 6:30pm
Nov. 21 & 23	CED 17, Schedule appointments for writing review	No Class	Thanksgiving Break
Nov. 28&30	CED 18, Social Impacts Revisions Due	Evaluations & Prep for Seminar	Nano-scale Imaging with Dr. Kihm 3:30pm, 11/30
Dec. 5&7	Last Day to Turn in Work unless negotiated in advance	Last Day of Classes	

On Plagiarism...from Senate Rule 6.3.1

All academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research or self-expression...When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism.

Plagiarism includes reproducing someone else's work, whether it be published article, chapter of a book, a paper from a friend or some file, or whatever. Plagiarism also includes the practice of employing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone.

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain.