

HPSC3036 Governing Emerging Technologies

Course Syllabus

2013-14 session | Dr Jack Stilgoe | j.stilgoe@ucl.ac.uk

Course Information

This course goes inside technology to discuss its political and ethical dimensions. Technologies shape our future in powerful and largely unaccountable ways. Are they inevitable, or can we control the technologies that we get, anticipate their implications, prevent hazards and share their benefits? Why do we have iPads and space shuttles but we don't all drive electric cars and have clean drinking water in the developing world? Were the Fukushima nuclear meltdown and the financial crisis just accidents? What could regulators have done to prevent them? As science introduces new risks and ethical dilemmas, what should governments do to control research, publication, patenting and innovation? The course will teach students to think and write clearly and critically about technology. It will be assessed through an essay and a series of short blog-posts.

Basic course information

Course website:	http://www.ucl.ac.uk/sts/staff/stilgoe/3036
Moodle Web site:	HPSC3036
Assessment:	Coursework 1 (blog posts, total 3,000 words) Coursework 2 (essay 3,000 words) (50% each)
Timetable:	www.ucl.ac.uk/sts/hpsc
Prerequisites:	No pre-requisites. Course is designed for 3 rd year students
Required texts:	No required texts for the course overall, but particular readings are required for each week's seminar
Course tutor(s):	Jack Stilgoe
Contact:	j.stilgoe@ucl.ac.uk t: 020 7679 7197
Web:	www.ucl.ac.uk/sts/staff/stilgoe
Office location:	22 Gordon Square, Room 2.4
Office hours:	Thursdays, 10-11am, 11am-12pm

Schedule

UCL Week	Topic	Lecture Date	Activity
6	What does technology do?	Mon 31 st Sept 2013	Essential reading for each seminar in list below
7	Controlling innovation	Mon 7 th Oct 2013	
8	Geoengineering: The ultimate techno-fix?	Mon 14 th Oct 2013	
9	The politics of innovation	Mon 21 st Oct 2013	
10	Will genetic modification feed the world?	Mon 28 th Oct 2013	
12	Reading Week	Week of 4 th Nov 2013	
11	Risks, accidents and precaution	Mon 11 th Nov 2013	
13	Nanotechnology and democracy	Mon 18 th Nov 2013	Blog posts due 23 rd Nov
14	Expectations, imaginaries and futures	Mon 25 th Nov 2013	
15	Responsible innovation	Mon 2 nd Dec 2013	
16	Human enhancement and ethics	Mon 9 th Dec 2013	Essay due 17 th Dec

Assessments

Summary

	Description	Deadline	Word limit
Blog posts	Blog post one	11.59 pm, Thu 17-Oct 11.59 pm, Thu 31-Oct 11.59 pm, Fri 21-Nov	Total 3,000
	Blog post two		
	Blog post three (due date for final submission of all three blog posts)		
Essay	See titles below	11.59pm, Mon 16-Dec	3,000

Assignments

In order to be deemed 'complete' on this module, students must attempt the blog posts and the essay. The trio of blog posts and the essay must be submitted via Moodle. Blog posts one, two and three should ideally be published online, where they can be viewed and commented upon by others. Blog posts will be discussed in class and feedback provided. Blog posts should be fully hyperlinked. We will discuss in class what makes for a good blog post, and students will be supported in their writing. Students will in general be expected to demonstrate that they have understood the ideas and approaches of the course and are able to apply them in a readable way

to topical and emerging issues. They will be expected to research issues online and demonstrate this with hyperlinks. Students will be assessed on style as well as substance. The assumption will be that students' blogging skills develop over the course of the term, with help from their colleagues.

Essay Titles

1. How should scientists and innovators manage expectations for new science and technology?
2. Discuss, with reference to a particular emerging technology, Michael Polanyi's claim that "You can kill or mutilate the advance of science, you cannot shape it"?
3. How can we make science and technology work better for people in developing countries?
4. What might a responsible approach to research in geoengineering look like?
5. What can we learn from past accidents and 'early warnings'? Can we do anything to stop such things in the future?
6. "Scientists' responsibilities start and end in the lab". Discuss with respect to a specific scientific field, technology or policy issue.

(Students are free to suggest their own alternative essay topics, but they must be agreed with me)

Criteria for assessment

The departmental marking guidelines for individual items of assessment can be found in the STS Student Handbook. The quality, accessibility and clarity of students' writing in blogs will also be recognised and rewarded.

Aims & objectives

The aims of this course are to get students to think and write critically about the directions of science and technology, taking into account social, political, economic and ethical questions. By the end of this course, students will be familiar with a number of case studies of emerging technologies and they will be able to apply the lessons from these to other areas of science and technology. The idea is to study concepts and cases in lectures, discuss them in seminars and apply them to new areas at the frontiers of science and innovation through students' own writing. In addition to assessment via essay, the course also asks students to write accessibly and publicly, via a blog, about new technologies.

Reading list

These are essential readings for class discussions. Most of the assigned readings are not arduous. Students will therefore be expected to explore additional material around the topics of the course and use these ideas in class discussions.

Additional readings, referred to in lectures and to inform discussion, blog posts and essays, will be put on Moodle.

1. What does technology do?

Bill Joy, 2000, 'Why the future doesn't need us', Wired magazine, www.wired.com/wired/archive/8.04/joy.html

2. Controlling innovation

David Collingridge, 1980, The Social Control of Technology, Open University Press, Chapter 1, pp. 13-21 (on Moodle)

Polanyi, M. (1962). The Republic of Science: Its Political and Economic Theory. Minerva, 1, 54-74. <http://link.springer.com/article/10.1023%2FA%3A1026591624255#page-1>

3. Geoengineering: The ultimate techno-fix?

Alan Robock, 2008, '20 reasons why geoengineering may be a bad idea', Bulletin of Atomic Scientists, 64, No. 2, 14-18, 59, available at http://www.thebulletin.org/files/064002006_0.pdf

Dan Sarewitz and Richard Nelson, 2008, 'Three rules for technological fixes', Nature, 2008, <http://thebreakthrough.org/blog/Sarewitz-Nature%20tech%20fix.pdf>

Jeff Goodell, 2010, How to cool the planet, Houghton Mifflin Harcourt, Chapter one (on Moodle)

4. The politics of innovation

Eric von Hippel, 2005, Democratizing innovation, MIT University Press, chapter 1, available here <http://web.mit.edu/evhippel/www/democ1.htm>

STEPS Centre, 2010, A New Manifesto, http://anewmanifesto.org/wp-content/uploads/steps-manifesto_small-file.pdf - especially the section "A new 3D agenda"

5. Will genetic modification feed the world?

Sheila Jasanoff, 2007, 'Let them eat cake': GM foods and the democratic imagination. In: Science and Citizens: Globalization and the challenge of Engagement, Leach, M, Scoones, I and Wynne, B (eds), available at <http://www.drc-citizenship.org/system/assets/1052734486/original/1052734486-jasanoff.2005-let.pdf?1289503840>

6. Risks, accidents and precaution

European Environment Agency, 2002, Late lessons from early warnings, Chapter 1 - Introduction.

http://www.eea.europa.eu/publications/environmental_issue_report_2001_22

Charles Perrow, 1981, 'Normal Accident at Three Mile Island', Society, Volume 18, Number 5, 17-26, <http://www.penelopeironstone.com/Perrow.pdf>

(if you have time, see also Charles Perrow's new preface to the paperback edition of The Next Catastrophe: Reducing our Vulnerabilities to Natural, Industrial and Terrorist disasters. This should be readable on the Amazon web site if you 'click to look inside'

http://www.amazon.com/The-Next-Catastrophe-Vulnerabilities-Industrial/dp/0691150168/ref=tmm_pap_title_0)

7. Nanotechnology and democracy

Rob Doubleday, 2007, 'The laboratory revisited: academic science and the responsible governance of nanotechnology' NanoEthics, 1(2): 167-176. doi:10.1007/s11569-007-0017-4 <http://www.springerlink.com/content/2417218u44712564/fulltext.pdf>

8. Expectations, imaginaries and futures

Mike Fortun, 2005, 'For An Ethics of Promising, Or, A Few Kind Words About James Watson.' New Genetics and Society 24/2:157-173

<http://www.tandfonline.com/doi/abs/10.1080/14636770500184792>

9. Responsible innovation

Bruno Latour, 2011, 'Love your monsters' The Breakthrough journal. Reproduced here <http://convozine.com/monster-theory/31585>

Michael Rogers, 1975, The Pandora's Box Congress, Rolling Stone magazine, June 19th 1975 <http://climateresponsefund.org/images/Conference/rollingstone1975.pdf> (a contemporary account of the original Asilomar conference on recombinant DNA)

10. Human enhancement

Michael Sandel, 2004, The case against perfection, What's wrong with designer children,

bionic athletes and genetic engineering, The Atlantic Monthly, April 2004,
<http://www.theatlantic.com/past/docs/issues/2004/04/sandel.htm>

Course expectations

In addition to submitting assessed material, students are expected to attend all lectures and seminars. They are expected to have read the essential reading before each seminar and be willing to discuss the readings and the lecture. Students are expected to conduct online research into areas of new technology. Students are also expected to publish blog posts online so that other members of the class can read them.

Important policy information

Details of college and departmental policies relating to modules and assessments can be found in the STS Student Handbook www.ucl.ac.uk/sts/handbook

All students taking modules in the STS department are expected to read these policies.
