HPSC1004 Science Policy

Course Syllabus

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

This course offers an introduction to social and political thinking about the role of science and technology in society and the relationship between science and government. Science plays a vital role in shaping policy and society. At the same time, social, cultural and political forces shape the production of scientific knowledge. This course explores science in society and considers science as a social process.

We will focus on current theory in the area of science policy research and STS, asking questions such as: what is the role of the state in regulating, promoting and financing science? What makes an expert? Should scientists be the only ones to make decisions about the direction of scientific research? The course will use a range of case studies alongside theory to explore these issues.

Attend two lectures and one seminar per week.

Basic course information

Moodle Web site:	https://moodle.ucl.ac.uk/course/view.php?id=12475
Assessment:	Two pieces of coursework (max 1,800 words) (25% each) and one exam (50%)
Timetable:	www.ucl.ac.uk/sts/hpsc
Prerequisites:	No prerequisites
Required texts:	No required texts
Course tutor(s):	Course convenor: Dr Jack Stilgoe Teaching assistants: Raquel Velho and Tona Anzures
Contact:	j.stilgoe@ucl.ac.uk raquel.velho.12@ucl.ac.uk tonatiuh.anzures.11@ucl.ac.uk
Web:	http://www.ucl.ac.uk/sts/staff/stilgoe
Office location:	22 Gordon Square, Room 2.4
Stilgoe office hours:	Tuesdays 2-3pm Wednesdays 10-11am

Schedule

UCL Week	Topic	Lecture Dates	Activity
20	Introduction: Why science policy matters	14th and 15th Jan	Essential reading
21	Big Science and the evolution of science policy	21st and 22nd Jan	Essential reading
22	21st Century science policy	28th and 29th Jan	Essential reading
23	The scientific community and the sociology of science	4th and 5th Feb	Essential reading
24	Risk and uncertainty **DEADLINE: Essay 1**	11th and 12th Feb **14/02/2013**	Essential reading
25	**Reading Week**		
26	Science, technology and innovation	25th and 26th Feb	Essential reading
27	Science and expert advice	4th and 5th March	Essential reading
28	Open access and open science	11th and 12th March	Essential reading
29	Can we control the Internet?	18th and 19th March	Essential reading
30	Science policy in global context: the rise of China and India **DEADLINE: Essay 2**	25th and 26th March **28/03/2013**	Essential reading

Assessments

Summary

	Description	Deadline	Word limit
Essay One	An essay of 1500-1800 words. Topic to be chosen from the ESSAY ONE list	11.59pm Friday 14/02/2013	1800
Essay Two	An essay of 1800-1800 words. Topic to be chosen from the ESSAY TWO list	11.59pm Friday 28/03/2013	1800
Exam	3 Hours	Summer Term	n/a

Assignments

The assessment for this course consists of two essays and an exam. Essays should aim to be around 1,500 words, with an absolute maximum of 1,800 words. Each is worth 25% of your final mark. The third piece of assessment takes the form of a 3 hour unseen exam, worth 50% of your final mark.

Essays must be submitted via Moodle.

Essay questions

ESSAY ONE – choose one question

1. If science produces such large economic benefits, why should governments fund scientific research?
2. Describe and analyse a contemporary case of Big Science
3. How has UK science policy changed from World War 2 to the present day?
4. Does contemporary science live up to Robert Merton's norms?
5. Are we living in a 'risk society'?

ESSAY TWO – choose one question

1. Dan Sarewitz (2004) argues that "science makes environmental controversies worse" rather than better. How? And what should we do about it?
2. "When it comes to policy issues, experts should stick to the facts". Discuss.
3. Discuss whether the Internet should be free from government control
4. As China, India and other countries increase their investments in science, how should UK policymakers respond?
5. According to Rosenburg (1994) "Everyone knows that the linear model of innovation is dead". So why does it keep cropping up?
6. Should the UK government be insisting that all science is open access?

Criteria for assessment

The departmental marking guidelines for individual items of assessment can be found in the STS Student Handbook.

Aims & objectives

Aims:

This course aims to introduce students to social and political thinking about science. Students will explore a range of case studies against a backdrop of theory in order to understand science as a social and political process; how science is funded; what science policy is and how it affects our lives; how decisions about science and technology are made; as well as thinking about questions such as: what makes an expert? Should scientists be involved in the policy-making process on science and technology; and to what extent should scientists be held to account in terms of their research?

Objectives:

By the end of this course students will:

- Be able to identify the main themes of science policy studies
- Be able to criticise simplistic and popular notions of the relationship between science, technology and society
- Have detailed knowledge of a number of case studies in science policy (and, in particular, the social and political dimensions of the cases)
- Have developed research skills through the seminar work and course assessment

Reading list

This section provides details of the readings for each week. Under essential reading I have listed papers or chapters that I expect you to read before the seminar. Under additional reading I have listed extra readings for the essays and exam. I encourage you to also do your own research to find readings and sources that are not included here.

Week One: Why science policy matters

Science and technology are vital parts of human society, but they are often overlooked by politicians and the media. In the first week, we'll be looking at why science matters, why it matters for policy and why policy matters for science. We'll also start to think about what features make science and technology similar to and different from other areas of policy.

Essential reading:

Henderson, M (2012) The Geek Manifesto: Why science matters, Corgi (Chapter 2 – Geeking the vote)

Additional reading:

A Webster (1991) Science, Technology and Society, Macmillan, 33-42 'Sociology and Science Policy: Opening and Managing the Black Box'

Pielke, R. A. (2007) The Honest Broker: Making sense of science in policy and politics Cambridge (Chapter 3 on science and decision making)

Wilsdon, J. Wynne, B. and Stilgoe, J. (2005) 'The Public Value of Science: Or how to ensure that science really matters' Demos, London (Chapter 1)

Mazzucato, M (2013) The Entrepreneurial State, Anthem (Chapter 5 – The state behind the iPhone)

Bowler, P and Morus, I (2005), 'The Organisation of Science' in Making Modern Science: A Historical Survey (Chicago: Uni. Chicago Press) (Chapter 14) [Electronic Version Available]

Francis Bacon, The New Atlantis (1624/1627) in Bacon, The Advancement of Learning, and, New Atlantis, edited by Arthur Johnston (Oxford: Clarendon Press, 1974) – pages 239-247 only. (available online from Project Gutenberg at: http://www.gutenberg.org/dirs/etext00/nwatl11.txt) (Read from "God bless thee, my son; I will give thee the greatest jewel I have. For I will impart unto thee, for the love of God and men, a relation of the true state of Salomon's House" to the end).

Policy documents

Tony Blair, Science Matters speech, 2002, http://www.ukpolitics.org.uk/node/1863

Week Two: Big Science and the evolution of science policy

The shape and size of science changed hugely during the twentieth century. Rich countries spend vastly more money on science than they did before World War 2. Science has got big.

Essential Reading:

Capshew, JH and Rader, K (1992), 'Big Science: Price to the Present' in A. Thackray (ed.), Science after '40, Special edition of the journal Osiris (1992) 7, pp.3-25 (electronic copy available on Moodle)

Additional Reading:
On big science
Hughes, J (2002), The Manhattan Project: Big Science and the Atom Bomb, Icon Books (Chapters 1 and 2)

Galison, P and Hevly, B (eds.), Big Science: the Growth of Large-scale Research, Stanford: Stanford University Press, 1992. (Introduction and See also the other articles in this collection)

Ravetz, J (2006), The No-Nonsense Guide to Science, New Internationalist, (Chapter 4 'Little Science, Big Science, Mega Science')

On science policy trends

Flanagan, K. and Keenan, M. (1998) 'Trends in UK science policy' in Cunningham, P. (ed.) Science and Technology in the United Kingdom Cartermill (This chapter gives an overview of developments in science policy from the end of WWII to the late 1980s) (electronic copy available on Moodle) or here…
https://www.escholar.manchester.ac.uk/api/datastream?publicationPid=uk-ac-man-scw:3b4379&datastreamId=FULL-TEXT.PDF

Gummett P (1991), "The Evolution of Science and Technology Policy: A UK Perspective", Science and Public Policy Vol.18 No.1 pp31-37. [TC 669] (Good short overview, unfortunately ends in 1990).

Agar, J (2003), 'Science and Information Technology' in Hollowell, J (ed) Britain Since 1945 (Oxford: Blackwell) [TC 5402]

Wilkie, T (1991), British Science and Politics Since 1945 (Oxford: Blackwell). Chapters 2 and 6.

Hull, A (1999), 'War of Words: The Public Science of the British Scientific Community and the Origins of the Department of Scientific and Industrial Research 1914-16', British Journal for History of Science 32:461-81.

Edgerton, D. (2009) 'The Haldane Principle and other invented traditions in science policy' (available online at: www.historyandpolicy.org/papers/policy-paper-88.html)

Week Three: 21st century science policy

In the 21st Century, science is seen as a vital source of economic growth, but the financial crisis of 2008 has forced countries to cut spending. Why should we spend money on science when there are other pressing needs? The ways in which money is allocated to science are changing. Politicians and the public want to know more about how their money is being spent. Are we moving from 'Mode 1' to 'Mode 2' science?

Essential reading

Royal Society (2010) The Scientific Century: Securing our future prosperity,

http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/publications/2010/4294970126.pdf

Additional reading

Elzinga, A. (2012). Features of the current science policy regime: Viewed in historical perspective. Science and Public Policy, 39(4), 416-428.

Salter, A. et al. (2000) Talent: Not Technology: Publicly funded research and innovation in the UK (SPRU, Sussex) (electronic copy available on Moodle)

Callon, M. (1994) 'Is Science a Public Good?' Science, Technology and Human Values, 19 No.4 pp.395-425

Kealey, T, (2013) The Case against Public Science, Cato Unbound. http://www.cato-unbound.org/2013/08/05/terence-kealey/case-against-public-science (the latest version of Kealey's libertarian argument against public science funding)

Nelson, Richard R. 1959. "The Simple Economics of Basic Scientific Research." Journal of Political Economy 77: 297-306. http://www.journals.uchicago.edu/cgi-bin/resolve?id=doi:10.1086/258177

Arrow, K. (1962). Economic welfare and the allocation of resources for invention. In The rate and direction of inventive activity: Economic and social factors (pp. 609-626). http://www.nber.org/chapters/c2144.pdf (rather dense economics, but an important source)

Pavitt, K (1991), 'What makes basic research economically useful?', Research Policy, vol 20, no 2, pp109-20 (argues that the benefits from basic science are far broader than the knowledge produced). Available here: http://www.iot.ntnu.no/innovation/norsi-pims-courses/laursenfoss/Pavitt%20(1991).pdf

Balconi, M et al (2010), 'In defence of the linear model: An essay', Research Policy 39: 1-13.

Godin, B (2006), 'The linear model of innovation: the historical construction of an analytical framework', Science, Technology & Human Values 31(6), pp.639-667 (2006)

EITHER
Etzkowitz, H and Leydesdorff, L (1998), 'The endless Transition: a 'triple helix' of university-industry-government relations' Minerva 36: 203-208 (Models university-industry-government dynamic relationship)
OR
Etzkowitz, H and Leydesdorff, L (2000): 'The dynamics of innovation: from National Systems and ''Mode 2'' to a Triple Helix of university-industry-government relations'. Research Policy, 29, 109-123

Pielke, R. A. (2007) The Honest Broker: Making sense of science in policy and politics Cambridge (read Chapter 6 on how science policy shapes science)

Guston, D. H., & Keniston, K. (Eds.). (1994). The fragile contract: University science and the federal government. MIT Press.

On Mode 1 and Mode 2

Hessels, LK and van Lente, H (2008), 'Re-thinking new knowledge production: A literature review and a research agenda', Research Policy 37(4):740-760

Gibbons, M et al (1994), The New Production of Knowledge: The Dynamics of Research in Contemporary Societies (Sage) (Introduction and Chapter 1 for a more theoretical approach to recent changes in science. Glossary at the back if the language gets too dense).

Ziman, J, 1996, Post-academic science, Science Studies, 1, available here: http://tudelft.nl/fileadmin/UD/MenC/Support/Internet/TU%20Website/TU%20Delft/Homepage_TU_Delft/Onderzoek/Graduate_School/Ziman_-_Postacademic_science.pdf (this draws useful links with Merton's norms, discussed in Week 4)

Smith, B.L.R. (1996) 'The accountability of science' in *Minerva* 34(1) pp.45-56 (electronic copy available on Moodle)

Gibbons, M. (1999) 'Science's new social contract with society' in *Nature* 402, http://www.nature.com/nature/journal/v402/n6761supp/full/402c81a0.html (electronic copy available on Moodle)

Policy documents

BIS (2008) 'Innovation Nation' White paper
http://www.bis.gov.uk/assets/biscore/corporate/migratedD/ec_group/18-08-C_b

Nesta (2008) Towards an Innovation Nation (response to the White paper from BIS)
www.nesta.org.uk/sites/default/files/towards-an-innovation-nation.pdf

Week Four: The scientific community and the sociology of science

Scientists and philosophers offer explanations for how scientific knowledge is supposed to progress. Sociologists of science instead ask what science is really like and how it is really done. Does it live up to the ideal image that we are often presented with?

Essential Readings

Sismondo, S (2004), *An Introduction to Science and Technology Studies* (Oxford: Blackwell) Chapter 3 (Questioning Functionalism in the Sociology of Science) [Electronic Version Available]

Additional Readings*:*

Mulkay, M (1991), 'Norms and Ideology in Science' in *Sociology of Science: A Sociological Pilgrimage* [TC 3094] or in the journal *Social Science Information*, 15(4/5), 1976, pages 637-656

Merton, RK (1973), 'The Normative Structure of Science', in *The Sociology of Science* (Chicago: University of Chicago Press), Chapter 13 pp267-278 [TC 1264].

Erickson, M (2005), Science, Culture and Society: Understanding Science in the 21st Century (Cambridge: Polity) (Chapter 5: Scientists and Scientific Communities)

Ziman, J (1984), *An Introduction to Science Studies* (Cambridge University Press) Especially chapter 6.

Mitroff, I (1974), 'Norms and counter-norms in a select group of Apollo moon scientists', *American Sociological Review* Vol.39 pp579-95. (Pay attention to the main points of the introduction and conclusion) [TC 2202]

Bridgstock, M *et al*, (1998) *Science, Technology and Society: An Introduction* (CUP), Chapter 5.

Merton, R, (1968), The Matthew Effect in Science, in Science, Vol. 159, pp. 56-63, http://www.garfield.library.upenn.edu/merton/matthew1.pdf

Shapin, S (2008), The Scientific life, University of Chicago Press (Chapter 1 – Knowledge and Virtue)

Haralambos, M (1985) Sociology: New Directions, Lancs: Causeway (Chapter 4 pp 474-89, on Sociology of Science)

Policy document
Gareth Roberts, 2002, SET for success: the supply of people with science, technology engineering and mathematical skills, Figure 3.3 Report of Sir Gareth Roberts' Review, April 2002, Section 3.1 http://webarchive.nationalarchives.gov.uk/+/http:/www.hm-treasury.gov.uk/d/robertsreview_introch1.pdf

Week Five: Risk and uncertainty

Science and technology have vast potential benefits. But this increased power also brings new risks. We may be able to calculate these risks, or we may be completely uncertain.

Essential Readings

Ravetz, J (2006), The No-Nonsense Guide to Science (New Internationalist), Chapters 5 and 6 (Scientific Objectivity; Uncertainty) (Chapter on Uncertainty: Electronic Version Available)

Additional Readings

European Environment Agency (2002) Late lessons from early warnings, Chapter 1 - Introduction.
http://www.eea.europa.eu/publications/environmental_issue_report_2001_22

Irwin, A (2001), *Sociology and the Environment* (Cambridge: Polity). Chapter 2 'The Risk Society Thesis'

A Irwin, 'STS Perspectives on Scientific Governance', in EJ Hackett et al. (eds.), Handbook of Science and Technology Studies, MIT Press, Cambridge MA, 2008, 583-607

Lupton, D (1999), *Risk* (Routledge). (Chapter 2). (Intro. to sociology of risk).

Ortwinn Renn, three decades of risk research, Journal of Risk Research 1 (1), 49–71 (1998) http://paul-hadrien.info/backup/LSE/IS%20490/utile/Renn%203%20decades%20of%20risk%20research.pdf (on different ways of studying risk)

Funtowicz, S. O. and Ravetz, J. R.: 1993, 'Science for the Post-Normal Age', Futures 25, 739–755. http://www.tsama.org.za/documents/doc_download/238-funtowicz-1993-science-for-post-normal-age.html

Stirling, A. (2007) Risk, precaution an science: towards a more constructive policy debate. EMBO reports, 8(4): 309-315

Yearley, S (2005), in Making Sense of Science: Understanding the Social Study of Science, London: Sage. 'Chapter 9: Figuring Out Risks'

Gregory, J and Miller, S (1998), 'An ABC of Risk - Apples, BSE and Comets', in Science in Public: Communication, Culture, and Credibility (Plenum) Ch.7.

Pate-Cornell, E. (2012) On black swans and perfect storms: risk analysis and management when statistics are not enough. Risk Analysis, 32(11): 1823-1833.

Stilgoe, J (2005), 'Controlling mobile phone health risks in the UK: a fragile discourse of compliance', *Science and Public Policy* Vol. 32(1): 55-64.

Nutt, D. et al (2007) Development of a rational scale to access the ham of drugs of potential misuse. The Lancet, 369(9566): 1047-1053

Week Six: READING WEEK

Week Seven: Science, technology and innovation

Thinking about technology is different from thinking about science, even if we can't draw a clear line between the two. How is science related to technology? Is technology just 'applied science' or is it more complicated?

Essential Reading

Brooks, H (1994): 'The relationship between science and technology'. Research Policy, 23, 477-486, http://sjbae.pbworks.com/f/brooks%2B1994.pdf

Winner, L (1999), 'Do Artefacts Have Politics?', in MacKenzie D and Wajcman J (Eds), The Social Shaping of Technology (Milton Keynes: Open University Press) pp28-39 (Also in 1st edition). (http://zaphod.mindlab.umd.edu/docSeminar/pdfs/Winner.pdf)

Additional Reading

Nye, D (2007) Technology Matters: Questions to Live With (Cambridge Mass: MIT Press) Chapters 2-4 ('Does Technology Control Us?' 'Is Technology Predictable?' 'How Do Historians Understand Technology?') (Chapter 4 available here http://digitizingamerica.shanti.virginia.edu/sites/shanti.virginia.edu.digitizingamerica/files/hius3162.nye_.ch04.how-do-historians-understand-technology.pdf) (includes the example of women's bicycles)

Gibbons, M and Gummett, P (Eds) (1984), Science, Technology and Society Today (Manchester: Manchester University Press). Chapter 6 (On the links between science and technology).

Stokes, D. E. (1997). Pasteur's quadrant: Basic science and technological innovation. Brookings Institution Press.

Ziman, J (1984), An Introduction to Science Studies (Cambridge University Press) (Chapter 9) (On the links between science and technology).

Wyatt, S (2007), 'Technological Determinism Is Dead; Long Live Technological Determinism' in Hackett, EJ (et al), The Handbook of Science and Technology studies (Cambridge, Mass. ; London : MIT Press) (3rd ed)

MacKenzie D and Wajcman J (eds) (1999), The Social Shaping of Technology (2nd Edition) (Milton Keynes: Open University Press) (Introduction and any case studies – try any of chapters 4, 9, 10, 20 or 28).

Brooks, H (1994): 'The relationship between science and technology'. Research Policy, 23, 477-486, http://sjbae.pbworks.com/f/brooks%2B1994.pdf

N. Rosenberg (1994), Exploring the Black Box: Technology, Economics, and History, New York: Cambridge University Press, p. 139

Balconi, M et al (2010), 'In defence of the linear model: An essay', Research Policy 39: 1-13.

Godin, B (2006), 'The linear model of innovation: the historical construction of an analytical framework', Science, Technology & Human Values 31(6), pp.639-667 (2006)

Richard Jones, The UK's Innovation deficit and how to repair it, Sheffield Political Economy Research Institute, http://speri.dept.shef.ac.uk/wp-content/uploads/2013/10/SPERI-Paper-No.6-The-UKs-Innovation-Deficit-and-How-to-Repair-it-PDF-1131KB.pdf

Aditya Chakraborty, How UK wonder substance graphene can't and won't benefit UK , The Guardian, Tuesday 3 December 2013
http://www.theguardian.com/science/2013/dec/03/graphene-wonder-substance-uk-economy

Week Eight: Science, expert advice and policy-making

Scientists are often asked to help Government with particular policy questions as expert advisers. This relationship is not straightforward. Scientists do not simply 'speak truth to power'.

Essential Reading:

Jasanoff, S. (1990) The fifth branch: science advisors as policy makers, Harvard University Press (Read the first chapter)

Additional Reading:

Sarewitz, D., 2003. How science makes environmental controversies worse. Environ. Sci. Policy 7, 385–403. http://archive.cspo.org/_old_ourlibrary/documents/environ_controv.pdf

Erik Millstone and Patrick van Zwanenberg, 2005, Mad Cows and Englishmen: BSE: Risk, Science and Governance. (Oxford: OUP). (this book contains the models described in the lecture - technocratic, red book, co-evolutionary etc.)

Millstone, E., & van Zwanenberg, P. (2001). Politics of expert advice: lessons from the early history of the BSE saga. Science and public policy, 28(2), 99-112. http://spp.oxfordjournals.org/content/28/2/99.full.pdf

Stilgoe, J., Irwin, A., & Jones, K. (2006). The received wisdom: Opening up expert advice. Demos http://www.demos.co.uk/publications/receivedwisdom

Sarewitz, D, The trouble with Climate science, Slate, http://www.slate.com/articles/health_and_science/green_room/2010/03/the_trouble_with_climate_science.html

Nelkin, D, (1975) The Political Impact of Scientific Expertise, Social Studies of Science, Vol. 5, No. 1, pp. 35-54, http://www.jstor.org/sici?sici=0306-3127%28197502%295%3A1%3C35%3ATPIOTE%3E2.0.CO%3B2-T

Collingridge, D. and Reeve, C. (1986) Science speaks to power: the role of experts in policymaking, Frances Pinter; London

Irwin, A. (1995) 'Science and the policy process' Chapter 3 in Citizen Science: a study of people, expertise and sustainable development Routledge

Policy documents

BIS (2010) Guidelines on the use of engineering and scientific advice in policy making (electronic copy available on Moodle)

Week Nine: Open access and scientific data

The growth of the Internet has prompted some scientists and others to push for greater openness – improved access to scientific information and new ways of doing science online.

Essential Reading:

On Open Access
Peter Suber, 2012, Open Access, Chapter 1, free online here http://mitpress.mit.edu/sites/default/files/titles/content/9780262517638_Open_Access_PDF_Version.pdf

On Open Science
Michael Nielsen, Reinventing Science, Chapter 1, free online here
http://press.princeton.edu/chapters/s9517.pdf

Additional Readings

Royal Society (2012) *Science as an Open Enterprise* (electronic copy available on Moodle)

Regazzi, J. (2004). The shifting sands of open access publishing: a publisher's view. *Serials Review*, 30(4): 275-280.

Velterop, J. (2004). Open Access: Science Publishing as Science Publishing Should Be. *Serials Review*, 30(4): 308-309.

Antelman, K. (2004). Do Open-Access Articles Have A Greater Research Impact? *College & Research Libraries*, 65(5): 372-382.

Goodman, D. (2004). The criteria for open access. *Serials Review*, 30(4): 258-270.

Harnad, S., et al (2004). The access/impact problem and the green and gold roads to open access. *Serials Review*, 30(4): 310-314.

Nicholas, D., and Rowlands, I. (2005). Open Access Publishing: The Evidence from the Authors. *The Journal of Academic Librarianship*, 31(3): 179-181.

Hulme, M and Ravetz, J (2009) Show Your Working: What Climategate means, BBC News
http://news.bbc.co.uk/1/hi/8388485.stm

Policy document
The Finch Report (2012) – Accessibility, sustainability, excellence: how to expand access to research publications. http://www.researchinfonet.org/wp-content/uploads/2012/06/Finch-Group-report-FINAL-VERSION.pdf

Week Ten: Can we control the Internet? (Guest lecturer Dr Simon Lock)

Governing the internet effectively is proving to be a increasingly challenging area of policy. What does protecting privacy and safeguarding freedoms mean when we are dealing with a medium that not only spans national borders but also public and private spaces? This lecture considers several of the policy challenges presented by our technologically networked world.

Essential Reading:
Morozov, E, 2011, The Net Delusion, Allen Lane (Chapter one – The Google Doctrine)

(available here http://www.publicaffairsbooks.com/morozovch1.pdf)

(Additional Reading will be available nearer the time on Moodle)

Week Eleven: Science policy in global context

Science is being done in new ways and in new places. As the Chinese and Indian economies grow, they are rapidly becoming scientific contenders. How should the West respond? Are European and American science under threat or is global science good for everyone?

Essential Reading:

Caroline Wagner, 2008, The new invisible college: Science for development, Brookings institution press, chapter 1, available online, http://www.brookings.edu/~/media/press/books/2008/newinvisiblecollege/newinvisiblecollege_chapter.pdf

Additional Reading:

UNESCO (2010) Science Report (read the executive summary, which is available as an electronic copy on Moodle)

Laredo, P. et al. (eds.) (2001) *Research and Innovation Policies in the New Global Economy: An international perspective*

Royal Society, Knowledge, Networks and Nations report, http://royalsociety.org/policy/projects/knowledge-networks-nations/report/

Global governance of science report, European Commission, http://ec.europa.eu/research/science-society/document_library/pdf_06/global-governance-020609_en.pdf

Demos (2007) The Atlas of Ideas, London, Demos, www.demos.co.uk/files/Overview_Final1.pdf

Course expectations

In order to be deemed 'complete' on this module students must attempt both essays and the exam.

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.