

Course Syllabus

2024-25 session | Professor Melanie Smallman | m.smallman@ucl.ac.uk

Course description

Whether we are talking about climate change, COVID or the economy, science is increasingly seen as a source of advice and evidence for policymakers throughout government. But what is the relationship between science and decision-making? Where does evidence come from and who are the experts? How are ideas converted into law, treaty and regulation and how are they implemented in within governments? These are some of the questions we consider this course. Drawing on real-life case studies, as well as the academic literature from STS and political science, we will look at how science is used in government, in parliament, at a local and international level, taking account of the many actors and processes that shape this work

Basic course information

Moodle Web site:	HPSC0124
Assessment:	Assessment: Coursework 1 (1000 words) 50%; Coursework 2 (Group presentation) 50%.
Timetable:	Check UCL timetable
Prerequisites:	No pre-requisites
Required texts:	No required texts. Each week there are two or three essential readings
Course tutor(s):	Professor Melanie Smallman
Contact:	Via moodle
Web:	www.ucl.ac.uk/sts/staff/smallman
Office hours:	tbc

Schedule

Topic	Date	Activity
Introduction and Overview	1 October	Do the essential reading before each class
Science in UK Government and Parliament <i>Seminar activity: preparing our own select committee (assessment preparation)</i>	8 October	Do the essential reading before class
Evidence based policymaking and Science Advice in the UK Government <i>Seminar activity: Why don't policymakers simply follow the evidence?</i>	15 October	Do the essential reading before class
Visit to House of Commons (tbc)	22 October	All attend
Sources of evidence and epistemic communities <i>Seminar activity: Planning and sourcing evidence (assessment preparation)</i>	29 October	Do the essential reading before class
Reading Week	5 November	No class
Group work to prepare for assessment 1 and presentations	12 November	Preparation for presentations
Group presentations	19 November	Do the essential reading

Guest lecture from policymaker (tbc) + preparation for assessment 2	26 November	Do the essential reading before class
Lay expertise (NB this is a two hour seminar not a lecture and seminar)	3 December	Do the essential reading before class
Politics and values in science and policymaking – why might different perspectives arise? + final preparation for assessment 2	10 December	Do the essential reading before class

Aims

This module **aims**:

- To build clear understanding of the role and structure of democratic governments, in particular the difference between elected policymakers and officials and between the executive and scrutiny roles
- To build fundamental understanding of the relationship between scientific evidence and policymaking within government
- To introduce students to questions about expertise, sources of advice and how evidence is sourced and used, and the challenges associated with this within UK government, including Parliament, government ministries, and NGOs
- To learn how to communicate with policymakers

Objectives

By the end of this module, students should be able to:

- Demonstrate knowledge of the structure and roles of governments, devolved administrations, parliament, politicians and officials within the UK
- Demonstrate knowledge of processes shaping policy implementation in the UK, such as the role of Civil servants, politicians, Peers, local government and NGOs
- Demonstrate knowledge of how evidence is sourced and evaluated in policy
- Discuss why evidence based policymaking is challenging and how science can be interpreted differently in different contexts
- Write in way that reflects these lessons for policymakers.

Assessments

Coursework 1 (50)	Group presentations	10-12 mins	In class presentation 19 November 2025
Coursework 2 (50%)	Individual policy briefing	No more than 1000 words	09.00 Wednesday 11 th December 2024

Coursework 1: Group presentation: Policy Briefing

You will be working in groups of 5 or 6 students. Your group should take one of the topics that the class has agreed. Taking on the role of civil servants, you should prepare a presentation 10-12 mins long, to advise your minister about a new aspect of science or an issue that science has identified as requiring action, to persuade them that they need to develop policy in this area.

Each member of your group should speak in the presentation (marks will be deducted from those who do not participate) and you should be prepared to answer questions from the audience at the end of the presentation.

Coursework 2: Policy Analysis

Building on the lessons you have learned from your group presentation, either take an aspect of the topic you have presented on and delve deeper, or choose a different topic and write a briefing for a Minister in the UK government to advise them on the availability or otherwise of the evidence they need in order to form policy on this topic. This analysis should reflect the key lessons learned in the lectures and at least include details of:

- The key issues for policymakers
- Brief Background to the case
- The nature of the evidence available and an evaluation of its usefulness and relevance
- Aspects where evidence is needed and where that evidence can be sourced
- Recommendations for any research that should be commissioned

Written work should be handed in via moodle (moodle.ucl.ac.uk). Do not e-mail coursework to the course tutor without prior permission.

Criteria for assessment

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

Above these criteria, all the assessments will also be marked for the accessibility and clarity of writing/presentation.

Coursework 1: Group presentation

In addition to the criteria indicated in the STS Student Handbook, the following are the main criteria on which your presentation will be marked. There are no set numbers/ percentages associated with these criteria but we will give you qualitative feedback based on them.

1. Did the presentation choose a topic that was relevant to policymakers?
2. Did the presentation use the right kind of language for policymakers?
3. Did the presentation contain the key information policymakers would want?
4. Was the presentation well researched and factually correct?
5. Was the presentation well organised? (Did it have a clear introduction and conclusion? Were all the speakers introduced? Was the purpose of the talk clear?)
6. Was the presentation well presented with clear slides?
7. Did all of the group members participate in the presentation?
8. Was the group able to answer questions sufficiently and appropriately?

Coursework 2: Policy Analysis

Policy Analysis documents should be:

- Relevant to the topic
- Be thorough and accurate
- Written in good, clear English, with no spelling or grammatical errors and accessible to a non-technical audience
- Provide context
- Give clear recommendations
- Remain politically neutral

Things to think about:

- International comparisons – does research carried out in other countries have relevance here?

- Does the source of research matter? Do you need to explain that to your minister?
- How are questions framed in the evidence you are looking at? Does that matter?
- Are all voices represented or are important stakeholders left out of the evidence?

Note on use of generative AI.

During the module, we will discuss whether and how generative AI is currently used in Government and learn more about the pitfalls – and recent legal cases - associated with its use. However, one of the key messages will be that for those working and advising government, in order to use AI effectively (and in a way that will not land you in trouble), you need to know how to produce a good policy briefing, to check information for accuracy and bias and to think for yourself.

Therefore, to help equip you with the professional skills necessary to take up a job in public service, the use of ChatGPT or any other AI platform or tool to generate either ideas or written content, or to produce any other material, is prohibited in this module. This aligns with [UCL's Category 1 guidance for students here](#).

Format of classes

Classes will take a range of formats. Typically they will include an introductory 'lecture' by the course tutor (or guest lecturer where appropriate), followed by a class discussion. Most weeks we will also have a discussion about your assessments, which will be the main place where assessment support will be offered. Please be prepared to speak and share your work in progress. Throughout we will draw on material from the reading list, so please come having read the material for each week.

One class will take place outside UCL, in the Palace of Westminster (subject to confirmation), which may impact your time immediately before or after the visit.

Reading list

The linked reading list is available on moodle or via the UCL Library reading lists.

Below is a list of **essential** and **advanced** readings for this module.

In class we will discuss at least the **essential** readings. If you haven't read them in advance, then you will gain the gist of the material during the lecture, although be aware that this level of understanding is insufficient to achieve good marks in this module. If you have read the papers in advance however, the lecture will help you make the cross connections,

comparisons and critiques that you will need in order to do more than pass this module. The choice is yours!

If you have time, you should also read the **advanced** pieces to gain the highest marks in your assessments. It is also expected that you will explore additional material to inform your policy analysis, essays and class discussions.

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

Week 1: Introduction and Overview – Why is science used in government?

Introductory session, giving an overview of the key ideas within this course. In particular, we will look at the motivations and challenges behind using science in government and parliament. In this class, students will be asked to discuss the week's readings in small groups and to present key findings back to the class, so please come prepared to speak about the reading material.

Essential reading

Guidance to help your reading: This week we will be discussing why science is used in government. Below are speeches from politicians throughout history, on science and technology. While reading them, pay attention to why they seem to think science is important enough to give a speech on the topic and what they see as the main roles and purposes of science. Maybe write your thoughts down so you are ready to discuss them in class.

Harold Wilson 'Labour's Plan' 1963

<http://nottspolitics.org/wp-content/uploads/2013/06/Labours-Plan-for-science.pdf>

Margaret Thatcher's Speech to the Royal Society, 1988

<https://www.margaretthatcher.org/document/107346>

Tony Blair's speech on British Science 23 May 2002

<https://www.theguardian.com/politics/2002/may/23/speeches.tonyblair>

President Obama's Comments to Whitehouse Science Fair, 2016

<https://obamawhitehouse.archives.gov/the-press-office/2016/04/13/remarks-president-white-house-science-fair>

Vladimir Lenin, Report on the Work of the Council of People's Commissars. December 22, 1920

<http://soviethistory.msu.edu/1921-2/electrification-campaign/communism-is-soviet-power-electrification-of-the-whole-country/>

Week 2: Science in UK Government and Parliament

What is policymaking, how does it work in the UK and where does science fit? In this lecture we will look at the structures that exist in government and parliament and consider the various roles of MPs, Ministers and Civil Servants.

The distinction between government as the executive and parliament as the legislature is introduced; some policymaking is in the hands of the government, but legislative change can only happen through parliament. Meanwhile, parliament also scrutinises the work of government and uses science evidence to do this. How might the uses of evidence – and the motivation for drawing on science – differ between government and parliament? Finally we will consider what structures exist in government and parliament for governing and making use of science.

Essential reading

Overview of the UK system of Government:

http://webarchive.nationalarchives.gov.uk/20121003074658/http://www.direct.gov.uk/en/GovernmentCitizensandRights/UKgovernment/Centralgovernmentandthemonarchy/DG_073438

Have a look at this short series of videos explaining the basics of what select committees are:

<http://www.parliament.uk/about/podcasts/theworkofparliament/select-committees-in-the-house-of-commons/introduction/>

Advanced reading

How policy is made in the UK:

<https://paulcairney.wordpress.com/2013/08/04/policy-and-policymaking-in-the-uk-chapter-1-draft-1/>

For an example of material provided by POST and the HoC Library to inform a parliamentary debate regarding legislative change in relation to mitochondrial donation see

<http://www.parliament.uk/business/news/2015/february/commons-debate-statutory-instrument-on-mitochondrial-donation/>

Week 3: Visit to the Houses of Parliament

TBC

Look out for more details on Moodle and during Week 2's class

Advanced preparation (or for those who miss the visit):

Virtual Tour of Houses of Parliament. UK Parliament. Available at:

<https://www.parliament.uk/visiting/virtualtour/>

Series of short videos explaining the basics of what select committees do and how they work.' UK Parliament. Available at:
<http://www.parliament.uk/about/podcasts/theworkofparliament/select-committees-in-the-house-of-commons/introduction/>

UK Parliament YouTube Channel
<https://www.youtube.com/user/UKParliament>

VR Tour of European Parliament
<https://www.europarl.europa.eu/news/en/headlines/eu-affairs/20161024STO48415/virtual-reality-experience-the-parliament-in-all-dimensions>.

Week 4: Evidence based policymaking and Science Advice in UK Government

How is science used in policymaking and how is this governed and managed? In this session we will look at the concept of evidence-based policymaking and the advice and support that is given to ministers and civil servants in using science in their roles. In particular, we will look at the role of Chief Scientific advisers and consider a case study from UK policy to see how this works in practice.

Essential Reading

A rough guide to science advice

<https://www.theguardian.com/science/political-science/2014/aug/27/a-rough-guide-to-science-advice>

Sutcliffe S. Court J (2005) Evidence-Based Policymaking: What is it? How does it work? What relevance for developing countries? Overseas Development Institute

<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/3683.pdf>

Government Office for Science (2015), *Chief Scientific Advisers and their officials: an introduction*

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/426307/15-2-chief-scientific-advisers-and-officials-introduction.pdf

Advanced Reading

Peter Gluckman. (2014). The art of science advice to government. *Nature*, 507, 164–165.

https://www.nature.com/polopoly_fs/1.14838!/menu/main/topColumns/topLeftColumn/pdf/507163a.pdf

Shaxson, L. Harrison, M. Morgan, M. (2009) Developing an evidence-based approach to environmental policy making: insights from Defra's Evidence & Innovation Strategy. SPRU Electronic Working Paper Number 181

https://www.researchgate.net/profile/Louise_Shaxson/publication/242478652_Developing_an_evidence-based_approach_to_environmental_policy_making_insights_from_Defra's_Evidence_Innovation_Strategy/links/56a744e608ae997e22bbce86.pdf

House of Lords Select Committee on Science and Technology (2012), *The role and functions of departmental Chief Scientific Advisors*, HL Paper 264

<https://publications.parliament.uk/pa/ld201012/ldselect/ldsctech/264/264.pdf>

(Have a look at the first two chapters for a general overview of CSAs, and skim read other parts for an example of a select committee discussing the state of play in 2012.)

Week 5: Sources of evidence, epistemic communities and types of expertise

What is evidence, what is expertise and how are they identified and sourced? In this session we will consider these questions by looking at the academic literature and a case study of the UK government's responses to Bovine Tuberculosis. This case study will also illustrate some of the limits and challenges of using science in national policymaking, including inconclusiveness of evidence, uncertainty, competing evidence, and variability in the quality and availability of evidence. Questions we will consider include: Is there a 'hierarchy' of different kinds of scientific evidence and advice? How should different kinds of evidence be weighted? Does the available science describe the problem (e.g. whether neonicotinoids affect bees, the way in which badgers pass on BTb) or does it test the proposed policy solution (e.g. how farmers will behave in response to a neonic ban, what the outcomes of badger cull trials are)?

In this session, we will also discuss preparations for the first assessment.

Essential reading

Cassidy, Angela. 2015. "'Big Science' in the Field: Experimenting with Badgers and Bovine TB, 1995–2015." *History and Philosophy of the Life Sciences* 37 (3). Springer International Publishing: 305–25. doi:10.1007/s40656-015-0072-z.

<https://link.springer.com/article/10.1007/s40656-015-0072-z>

Dunlop, C (2012). *Epistemic Communities*

<https://ore.exeter.ac.uk/repository/handle/10036/4098>

Additional Reading

BTb: This 2017 HoC Library Briefing paper provides information specifically on badger culling

<http://researchbriefings.files.parliament.uk/documents/SN06837/SN06837.pdf>

A House of Commons Library 'Debate Pack' from 2016 provides links to government strategies in relation to tackling BTb, news articles and other background information

<http://researchbriefings.files.parliament.uk/documents/CDP-2016-0152/CDP-2016-0152.pdf>.

Week 6: Reading Week

Week 7: Preparing for Group Presentations

This week's class will be dedicated to your preparation for the group presentation and addressing any questions you might have for me.

Week 8: Group Presentations (Assessment 1)

Everyone to attend

Week 9: Working with Science in Government – Guest lecture from UK policymakers (TBC)

An opportunity to hear from someone who has worked with science in government in the UK and to ask any questions you might have about this topic and about science policy careers.

Week 10: Lay Expertise – can the public ever be experts?

Can the public ever be experts? This session helps us move towards being more critical of the relationships between science and government by considering this question in the context of relevant literature. To do this, we look at five key papers. Students will be assigned to one of five groups and each group will take one of the papers below. While I would encourage you to read all of the papers, for next week's class, I want each of you to read the paper that has been assigned to your group. When you are reading, please think (and make notes) about:

- What the key message of the paper is
- Whether it tells us anything about the issues we have discussed so far on this module (you might need to think laterally not literally here)
- Why I have chosen it as a 'key' paper
- How you would explain the ideas in the paper to the rest of the class

Group 1

Epstein, S. (1995) 'The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials', *Science, Technology, & Human Values*. Sage Publications, Inc., pp. 408–437. doi: 10.2307/689868.

https://www.jstor.org/stable/689868?seq=1#page_scan_tab_contents

Group 2

Wynne, B. (1992) 'Misunderstood misunderstanding: social identities and public uptake of science', *Public Understanding of Science*, 1(3), pp. 281–304. doi: 10.1088/0963-6625/1/3/004. <http://pus.sagepub.com/cgi/content/abstract/1/3/281>

Group 3

Suryanarayanan, S. and Kleinman, D. L. (2013) 'Be(e)coming experts: The controversy over insecticides in the honey bee colony collapse disorder', *Social Studies of Science*. SAGE PublicationsSage UK: London, England, 43(2), pp. 215–240. <https://journals.sagepub.com/doi/abs/10.1177/0306312712466186>

Group 4

Jasanoff, S. (2003) 'Technologies of Humility: Citizen Participation in Governing Science', *Minerva*. Springer Netherlands, pp. 223–244. doi: 10.1023/A:1025557512320. <http://www.springerlink.com/content/qv3vj6548kn55h25/>

Group 5

Sarewitz, D. (2004) 'How science makes environmental controversies worse', *Environmental Science & Policy*. Elsevier, 7(5), pp. 385–403. doi: 10.1016/J.ENVSCI.2004.06.001. <https://www.sciencedirect.com/science/article/pii/S1462901104000620>

Week 10: Politics and values in science and policymaking – why might different perspectives arise?

In the various case studies looked at to date, we have seen how policy based upon science nevertheless differs in its interpretation of science. Do policymakers wilfully ignore the science and twist it to suit their objectives, or is science less objective than we may believe? In this session we will consider these issues, to reflect on how values are expressed in science based policymaking and why different perspectives might arise.

Essential Reading

Jasanoff, Sheila, and Hilton R Simmet. 'No Funeral Bells: Public Reason in a "post-Truth" Age"'. *Social Studies of Science* 47, no. 5 (October 2017): 751–770. <https://doi.org/10.1177/0306312717731936>.

Smallman, M. "Nothing to Do with the Science": How an Elite Sociotechnical Imaginary Cements Policy Resistance to Public Perspectives on Science and Technology through the Machinery of Government'. *Social Studies of Science*, 11 October 2019, 0306312719879768. <https://doi.org/10.1177/0306312719879768>.

Sarewitz, D. (2004) 'How science makes environmental controversies worse', *Environmental Science & Policy*. Elsevier, 7(5), pp. 385–403. doi: 10.1016/J.ENVSCI.2004.06.001. <https://www.sciencedirect.com/science/article/pii/S1462901104000620>

Course expectations

In addition to submitting assessed material, students are expected to attend and participate in all classes. They are expected to have read the essential (and ideally recommended) reading before each class and be willing to discuss the literature and the lecture. Students are expected to conduct online research into areas of new technology. Students are also expected to share their work in progress, such that they can be read and commented upon by other members of the class. Those assessments reaching the required standard will have the opportunity to be included in the collective report, which will be shared more widely, outside UCL.

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.
