

HPSC0036 Engaging the Public with Science

Course Syllabus

2020-21 session | Dr Carina Fearnley | c.fearnley@ucl.ac.uk

This module focuses on the many different ways in which publics engage with science in face-to-face contexts. Teaching will particularly focus on how scientists can most effectively engage members of the public through direct interactions such as science festivals and museums, and on how specific public groups, such as patient and citizen groups get involved, and engage with, scientific and medical research. Alongside gaining a practical understanding of how to organize such activities, students will also critically reflect on the theory and context that underpins such activities such as models of publics and audiences, rationales for engagement in different contexts and the wider policy contexts and historical trends.

Basic course information

Moodle Web site:	https://moodle.ucl.ac.uk/course/view.php?id=34447
Assessment:	Two pieces of coursework: 50% - Essay (2,500 words) 50% - Group Project (1,000 words per person and presentation)
Timetable:	Thursday 11.00 – 13.00
Prerequisites:	No prerequisites
Required texts:	See reading list below and the online reading list.
Course tutor(s):	Course convenor: Dr Carina Fearnley
Contact:	c.fearnley@ucl.ac.uk / sarah.jones.15@ucl.ac.uk
Web:	http://www.ucl.ac.uk/sts/staff/fearnley
Office location:	22 Gordon Square, Room 1.2a
Fearnley office hours:	TBC

Schedule

UCL Week	Lecture / Seminar	Lecture Date	Lecture Topic	Activity
20	1	14/01/21	Engaging with science through the ages: why engage? (CF)	Seminar: Experiences of science communication (CF)
21	2	21/01/21	The political landscape: framing of engagement - Experiments with democracy (JS)	Seminar: Design a public engagement exercise (JS)
22	3	28/01/21	The scientific landscape: the role of the scientist (CF)	Case study: Volcanic warning systems (CF)
23	4	4/02/21	The Citizen's science: approaches adopted (CF)	Guest lecture by Dr Roland Jackson: Experiences from Sciencewise (previously executive chair), and the British Science Association (previously chief executive).
24	5	11/02/21	Outline of the case study: Introduction to group projects and background to the Case study (CF)	
Deadline for Essay 11/02/21				
25		18/02/21	Reading Week	
26	6	25/02/21	Case Study Visit / Investigation (CF)	
27	7	4/03/21	Who are the experts: uncertain and risky science and the role of business (CF)	Seminar: Climate change on trial (CF)
28	8	11/03/21	Grassroots science: the organic activist (CF)	Guest Lecture by Dr Steve Cross: Public engagement in practice
29	9	18/03/21	Who are the public anyway and how do we know there is engagement? (CF)	Guest lecture by Science Grrl Founder and Tomorrow's World presenter Dr Ellie Cosgrave
30	10	25/03/21	Group presentations: Discussion and feedback (CF)	
Deadline for Report 30/03/21				

Key: CF- Carina Fearnley, JS – Jack Stilgoe

Assessments

	Description	Deadline	Word limit
50%	Individual Essay	16:00 11/02/21	2,500 Words
50%	Group Project 1) Group presentation (25%) 2) Group project (25%)	1) During lecture 10 2) 16:00 30/03/21	1) 10-15 minutes per group 2) Total word count of 2,500 words

Coursework

Assessment 1: Essay (50%)

Write a scholarly essay, of no more than 2,500 words, discussing the movement from the Public Understanding of Science (PUS) to Public Engagement of Science and Technology (PEST) with reference to a specific case study / subject of your choice. The aim of the essay is to highlight the evolution and relevance of public engagement, and the various forms in which it takes place, whilst considering the varying effectiveness of approaches to more deliberative democracy and policy development.

Assessment 2: Group engagement piece (50%)

Students will, as a group, choose a scenario from those provided in class, and work together to develop a public engagement activity which they will then be assessed on in two ways:

1. Oral project pitch – in the last session of the module, each group will have 10-15 minutes to pitch their proposed activity to the ‘funding panel’. Students will be assessed largely on the content, but also on the presentation itself. Each member of the group must contribute to a part of the presentation. This is worth 25% of the final module mark. Further details on this assignment will be provided in class.
2. Group report – each group will also provide a written rationale for their chosen activity, which will incorporate academic perspectives, justifying their approach. This is worth 25% of the final module mark. Further details will be provided in class.

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 engage students with the theory and practice of engaging the public with science via face-to-face activities in multiple public contexts.

Learning Outcomes

On successful completion of this course students should be able to:

1. Demonstrate a practical understanding of face-to-face engagement with science activities in a range of public contexts
2. Offer analysis of the theoretical underpinnings of practical activity in this area.
3. Understand the historical and policy context within which public engagement has developed
4. Evaluate the effectiveness of public engagement processes in particular social contexts
5. Reflect on the purpose, relevance and effectiveness of public engagement via face-to-face activities.

In addition, by the end of the course, students should be able to:

1. Demonstrate research skills appropriate to Year 2 STS modules
2. Demonstrate time and project management, working to tight deadlines
3. Demonstrate independence and initiative in project work

Reading List

Core readings include:

Bennett, D.J. and Jennings, R.C. eds., 2011. *Successful Science Communication: Telling It Like It Is*. Cambridge University Press.

Gregory, J. and Miller, S., 2000. *Science in public*. Basic Books.

Holliman, R., Whitelegg, L., Scanlon, E., Smidt, S. and Thomas, J., 2009. *Investigating science communication in the information age: Implications for public engagement and popular media*. Oxford University Press.

Irwin, A., 1995. *Citizen science: A study of people, expertise and sustainable development*. Psychology Press.

Public Understanding of Science, Special issue. See <http://pus.sagepub.com/content/23/1.toc>

Stilgoe, J., Lock, S.J. and Wilsdon, J., 2014. Why should we promote public engagement with science?. *Public Understanding of Science*, 23(1), pp.4-15.

Other books of interest:

Bauer, M.W. and Bucchi, M. eds., 2008. *Journalism, science and society: Science communication between news and public relations*. Routledge.

Brake, M.L. and Weitkamp, E. eds., 2009. *Introducing science communication: A practical guide*. Palgrave Macmillan

Cheng, D., Claessens, M., Gascoigne, T., Metcalfe, J., Schiele, B. and Shi, S., 2008. *Communicating science in social contexts. New Models, new Practices (Berlin, 2008)*.

Gilbert, J.K., Lewenstein, B.V. and Stocklmayer, S.M., 2013. *Communication and Engagement with Science and Technology: Issues and Dilemmas: a Reader in Science Communication*. Routledge.

Hecker, S., Haklay, M., Bowser, A., Makuch, Z., & Vogel, J. (Eds.). (2018). *Citizen Science: Innovation Open Scien*. UCL Press. See ebook open access at: <https://www.ucl.ac.uk/ucl-press/browse-books/citizen-science>

Holliman, R., Thomas, J., Smidt, S., Scanlon, E. and Whitelegg, L., 2009. *Practising science communication in the information age: Theorising professional practices*. Oxford University Press.

Essential and other readings:

All essential readings will be listed on and available via Moodle, unless specified. Further details on readings for the module and assessments will be posted on Moodle.

You are encouraged to start your own research to find readings and sources that relate to the module materials, and to take a general interest in key public engagement debates, controversies, and breakthroughs throughout the module. Here are some useful sources to start with:

Online Journals:

Public Understanding of Science: <http://pus.sagepub.com>

Science, technology & human values: <http://sth.sagepub.com>

Science Communication: <http://scx.sagepub.com>

Journal of Science Communication <http://jcom.sissa.it>

Useful websites:

- Sciencewise: <http://www.sciencewise-erc.org.uk>
- Zoomiverse: <https://www.zooniverse.org>
- Beacons for Public Engagement: <http://www.publicengagement.ac.uk/work-with-us/completed-projects/beacons>
- British Science Association: <http://www.britishtscienceassociation.org>
- Science Grrl: <http://sciencegrrl.co.uk>
- The UCL Public Engagement Unit: <https://www.ucl.ac.uk/public-engagement>
- National Co-coordinating Centre for Public Engagement: <http://www.publicengagement.ac.uk/explore-it>
- UCL Public and Cultural Engagement (PACE): <http://www.ucl.ac.uk/pace>
- Wellcome trust: <http://www.wellcome.ac.uk/funding/public-engagement>
- RCUK Public Engagement: <http://www.rcuk.ac.uk/pe/>
- Center for Public Engagement with Science & Technology: <http://www.aaas.org/pes>
- The Royal Institution: <http://www.rigb.org/about/mission-and-vision>
- The Times Cheltenham Science Festival: <http://www.cheltenhamfestivals.com/science>
- Think Lab: <http://www.think-lab-web.co.uk>
- Newton's Apple: <http://www.newtons-apple.org.uk>

Do not forget to read and follow relevant blogs, news stories, and twitter feeds of relevant institutions and scientific figures in the public domain (such as Brian Cox and UCL's own Hannah Fry), and relevant TV and Radio programmes.

Outline of lectures:

This section provides additional details of the materials addressed each week.

1. Engaging with science through the ages: why engage? (CF)

Lecture: An introductory lecture providing an overview of what public engagement is, and why should we do it. The evolution of mediating and communicating science is examined including the public understanding of science (PUS), to Public Engagement in/with Science and Technology (PEST), to science democracy, outlining various models and programmes used to frame the process of public engagement.

Seminar: Experiences of science communication.

Essential Reading

Lock, S.J., 2011. Deficits and dialogues: science communication and public understanding of science in the UK in Bennett, D.J. and Jennings, R.C., 2011. *Successful science communication*. Cambridge University Press, pp. 17-30

Wynne, B., 2006. Public engagement as a means of restoring public trust in science—hitting the notes, but missing the music? *Public Health Genomics*, 9(3), pp.211-220.

2. The political landscape: framing of engagement (JS)

Lecture and seminar by Dr Jack Stilgoe. What is the role of politics in public engagement, and what is the dialogue and agenda involved? This lecture explores the framing of upstream engagement, and D/dialogue, along with the tools used in developing policy and the problems of representation. This session focuses on the role of collaboration in public engagement and involves a seminar to design a public engagement exercise.

Essential Reading

Stilgoe, J., Lock, S.J. and Wilsdon, J., 2014. Why should we promote public engagement with science?. *Public Understanding of Science*, 23(1), pp.4-15.

Wilsdon, J. and Willis, R., 2004. *See-through science: why public engagement needs to move upstream*. Demos.

3. The scientific landscape: the role of the scientist (CF)

Lecture: What is the role of the scientist in public engagement? How is expert knowledge used and integrated by scientists? We also explore the dynamics between public engagement and education, some of the main environments where scientists engage at Science Festivals, and the role of public engagement in academia. This session focused on the role of transition in public engagement.

Case study: Using volcano early warning systems, Carina Fearnley will outline the role of the scientist, and the need to connect the scientist with the end user to develop effective early warnings focused around on the case studies from the United States and Iceland.

Essential Reading

Fearnley, C.J., 2013. Assigning a volcano alert level: negotiating uncertainty, risk, and complexity in decision-making processes. *Environ Plann A*, 45(8), pp.1891-1911.

Buckley, N., and Hordijkeno, S., Science festivals in Bennett, D.J. and Jennings, R.C., 2011. *Successful science communication*. Cambridge University Press, pp. 17-30.

Riise, J., 2008. Bringing science to the public. In *Communicating Science in Social Contexts* (pp. 301-309). Springer Netherlands.

4. The Citizen's science: approaches adopted (CF)

Lecture: Citizens are at the core of contemporary public engagement. In this lecture we examine the various approaches used in which the public are involved in the development of contemporary engagement and policy. This ranges from citizens juries, to consensus conferences, to patient engagement, to citizen science in the traditional sense (e.g. Zooniverse), right through to how the public get their voice into policy and decision-making issues involving science and technology (e.g. Sciencewise). Therefore, this lecture provides an overview of the various approaches, both top-down, and bottom-up that a citizen can be engaged in science and technology. This session is focused on the role of receiving in public engagement.

Guest lecture: Given by Dr Roland Jackson, Executive Chair of Sciencewise, and a prior CEO of the British Science Association. Roland will discuss his rich practical experience in the use and value of public dialogue as an integral part of policy involving science and technology.

Essential Reading

Bonney, R., Phillips, T.B., Ballard, H.L. and Enck, J.W., 2015. Can citizen science enhance public understanding of science?. *Public Understanding of Science*, p.0963662515607406.

Jasanoff, S., 2004. Science and citizenship: a new synergy. *Science and public policy*, 31(2), pp.90-94.

Stilgoe, J., 2009. *Citizen Scientists: reconnecting science with civil society*. London: Demos.

Halkier, B., 2015. Mundane science use in a practice theoretical perspective: Different understandings of the relations between citizen-consumers and public communication initiatives build on scientific claims. *Public Understanding of Science*, p.0963662515596314.

5. Outline of the case study and background (CF)

Seminar: Students to present background information on case study, and discuss. Bringing together practice / theory / academic / critical perspectives & evaluation of public engagement.

Essential Reading

Durant, J., Evans, G. and Thomas, G., 1992. Public understanding of science in Britain: the role of medicine in the popular representation of science. *Public Understanding of science*, 1(2), pp.161-182.

Grant, L., Evaluating success: how to find out what worked (and what didn't) in Bennett, D.J. and Jennings, R.C., 2011. *Successful science communication*. Cambridge University Press, pp. 403-422

Davies, S.R., 2013. Constituting public engagement: Meanings and genealogies of PEST in two UK studies. *Science Communication*, p.1075547013478203.

6. Case study visit and presentations (off campus) (CF)

Visit to case study and presentations made by staff there, opportunity to review the case study, and evaluate it.

No Essential Reading

7. Who are the experts: uncertain and risky science and the role of business (CF)

Seminar: We explore the theories behind who the expert is, how this can be qualified, along with how expertise is challenged in the contexts of business / commercial activities and the law. Environmental sciences are used to exemplify the challenges of uncertain and risky science when engaging the public, government, and business sector with science.

Activity: Climate change on trial: a debate on the role of experts within the controversial topic of global warming

Essential Reading

Revkin, A. C., Tackling the climate communication challenge in Bennett, D.J. and Jennings, R.C., 2011. *Successful science communication*. Cambridge University Press, pp. 137-150

Nowotny, H., 2014. Engaging with the political imaginaries of science: Near misses and future targets. *Public Understanding of Science*, 23(1), pp.16-20.

Gregory, J., Agar, J., Lock, S. and Harris, S., 2007. Public engagement of science in the private sector: a new form of PR?. *Journalism, Science and Society: Science Communication Between News and Public Relations*, 563409322, pp.203-213.

8. Grassroots science: the organic activist (MS)

Lecture: The lay expert, the activist can lead to movements in public engagement, to shape policy or practice. This organic form of public engagement can be seen in the maker movement, and the democratisation of technology, along with the drive behind climate change campaigns, such as those triggered by Greenpeace.

Guest lecture: Dr Steve Cross will discuss public engagement in practice. Steve will provide an both an institutional and practice based perspective to working in public engagement based on his diverse experience as Head of Public Engagement at University College London and, in 2009, founder of Bright Club and Science Showoff.

Essential Reading

Please watch Gasland – a film by Josh Fox: see <http://one.gaslandthemovie.com/home>

Hansen, T.B., 2005. Grassroots science—An ISYP ideal. *ISYP Journal on Science and World Affairs*, 1(1), pp.61-72.

Seleti, Y., 2013. The value of indigenous knowledge systems in the 21st century. *Communication and Engagement with Science and Technology: Issues and Dilemmas: a Reader in Science Communication*, pp.261-272.

Schenkelaars, P., Relations with environmental organisations: a very personal story in Bennett, D.J. and Jennings, R.C., 2011. *Successful science communication*. Cambridge University Press, pp. 204-220

9. Who are the public anyway and how do we know there is engagement? (ED)

Lecture: This lecture explores who the public really are. What is the role of the lay expert, how inclusive or exclusive is the public in public engagement. The scale of the 'public' is examined, from local to the national level, and the growing role of social media used in public engagement activities. A number of case studies such as Soapbox science are explored as new and old methods of engaging directly to the public

Guest lecture: Science Grrl Founder Dr Ellie Cosgrave will discuss the motives, actions, and evaluations of the engagement involved in this public focused project to promote Girls and Women in STEMM.

Take a read of: report "Through Both Eyes: the case for a Gender lens in STEM", by Dr Anna Zecharia, Dr Ellie Cosgrave, Professor Liz Thomas and Dr Rob Jones, was published on 31st March 2014.

http://sciencegrrl.co.uk/assets/SCIENCE-GRRL-Stem-Report_FINAL_WEBLINKS-1.pdf

You may also want to link this to the STS 1Book: Angela Saini's (2017) 'Inferior' – see more at:

<https://www.ucl.ac.uk/sts/sts-current-students/sts1book-programme>

Essential Reading

Birch, H., The social web in science communication in Bennett, D.J. and Jennings, R.C., 2011. *Successful science communication*. Cambridge University Press pp. 280-293

Burgess, J., Stirling, A., Clark, J., Davies, G., Eames, M., Staley, K. and Williamson, S., 2007. Deliberative mapping: a novel analytic-deliberative methodology to support contested science-policy decisions. *Public Understanding of Science*, 16(3), pp.299-322.

Gaskell, G., Stares, S., and Kronberger, N., The public's view of science in Bennett, D.J. and Jennings, R.C., 2011. *Successful science communication*. Cambridge University Press, pp. 60-76

Gregory, J. and Miller, S., 2000. *Science in public*. Basic Books. pp81-103

10. Group presentations (CF)

This session will comprise of all the group presentations of the groups findings. It is hoped that members of the case study institution may be able to attend and take on board your comments and provide feedback. It is hoped there will be some time at the end to have a discussion based on the presentations and feedback from attendees, and other group members.

No Essential Reading

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.