



CLCC50035: Public Engagement

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Create an exciting activity to engage the public with science, engineering and maths.

Module Lecturers



Rosie Fuller ([she/her](#))

An external consultant, Rosie spends most of her time devising and delivering public engagement activities for all sorts of audiences (families, students, teachers, toddlers, teens and elders among them). She has worked with a range of organisations focused on culture, heritage and STEM, including London Transport Museum, the British Museum and the Royal College of Nursing, squirrelling away insights into a wide range of public engagement strategies, both digital and face-to-face, along the way. She has a BA in Archaeology and Prehistory and an MA in Heritage Education and Interpretation.

She is currently developing an engineering-focussed programme for primary schools in Acton; and hands-on activities for a historic ship. She is also working with a national museum to run Saturday architecture clubs for children and teenagers.



Liz Danner ([she/her](#)) www.imperial.ac.uk/people/e.danner

As Engagement Coordinator (Capacity Building), Liz is part of the central [Societal Engagement](#) Team supporting Imperial staff and students to do more and better public engagement. She delivers a range of training sessions, manages internal [engagement networks](#) and supports public engagement programmes at both White City and South Kensington campuses.

Before joining Imperial, Liz facilitated events and education activities within museums, heritage sites, schools and universities on topics ranging from Roman architecture and Regency fashion to the human immune response and animal research. Liz holds a BA in Anthropology and MSc in Forensic Anthropology.

Introduction

Public engagement (PE) is about creating accessible and meaningful experiences and opportunities to share ideas, insights and skills with members of the public. You will discover how to deliver enjoyable and beneficial PE activities for a diverse range of audiences. Practical, reflective and fun activities will provide opportunities to enhance your communication and team-working, whilst also developing valuable evaluation skills to help you evidence if your activities are successful. There are a wide variety of exciting career paths in public engagement and this module is a fantastic way to learn more about this field, gain experience and develop your skills.

By the end of this module, you will:

1. Understand the **nature of public engagement** in the context of a university.
2. Explore the factors which lead to **planning and delivering good practice** in public engagement more broadly.
3. Demonstrate awareness of the steps you would take to **evaluate an engagement activity**, such as creating and measuring potential outcomes for audiences, evidenced through class activities
4. Discuss in class a **range of effective engagement approaches** appropriate to communicate with **different audiences**, demonstrated through the development of ideas for engaging with one public group.
5. Reflect on the **evolving relationships between STEM research, universities, and society**, including societal attitudes towards, and participation in, STEM research.
6. Appreciate the **role that public engagement plays in citizenship** and its value in understanding different perspectives, experiences and inequalities.
7. **Develop communication skills** through communicating with your peers and tutor(s) and to a public audience at an Imperial Lates event (or similar).
8. Demonstrate **awareness of future opportunities** to get involved in public engagement and understand the personal benefits of getting involved.

Module delivery

Classes take place on **Mondays from 16.00 to 18.00****. We plan to deliver sessions on Zoom in the autumn term from 11 October to 13 December 2021 with field trips detailed below for those on-campus. Contingent on restrictions and space, we hope to return to on-campus delivery in the spring term from 17 January to 21 March 2022. We will update you on these plans as soon as we know more.

Reading materials and other resources are on the **Blackboard Learn** portal for the course. All Zoom sessions will be recorded and made available to other students for reference through Blackboard and Panopto. Though recommended, you are not required to turn your camera on within sessions. Please reference the [Digital Education Recording Policy](#) for more information. Zoom recordings and session materials will be uploaded to Blackboard **each Tuesday**.

Your module consists of 20 sessions and it is important to attend all classes. A register is taken each week. If, for some unavoidable reason, you need to miss a class please e-mail Liz Danner in advance. There is a minimum attendance requirement of 75% to pass the course.

Work submitted up to 24 hours late will receive a **capped maximum of 40%**, and after that **no marks**, in accordance with College policy.

** Please note all times and dates are listed in London UK time. This is in British Summer Time (BST) through 31 October 2021 when the clocks return to Greenwich Mean Time (GMT)/ Coordinated Universal Time (UTC +- 00.00). To avoid confusion you may wish use the free website and mobile app World Time Buddy www.worldtimebuddy.com/ to view your time zone in reference to London.

Assessment

Independent Work:

Activity Observation (10%)

Short (1-2 page) written exercise reviewing a piece of public engagement you have experienced. Template and activity suggestions will be provided in session 2 and due at the end of the Autumn term. Deadline for submission **4pm Friday 17 December 2021**.

Class participation (40%)

Written self-reflection of your class participation and role within the group project (40%). Writing prompt will be provided at end of the Autumn term and due at end of the Spring term. Deadline for submission **4pm Friday 25 March 2022**.

Group Project:

Planning Presentation (15%)

Group presentation detailing your plans for a public engagement activity. Groups will be assigned and further details of the activity provided in session 4. Presentation to be delivered in session 8 **Monday 29 November 2021**. Deadline for submission of slides and Planning Document **4pm Wednesday 01 December 2021**.

Engagement Activity (20%)

Group project developing and delivering a public engagement activity within [Imperial College Public Engagement programmes](#). Further details of the activity and programme will be provided in session 4. Delivery of your activity will be outside of class time in lieu of session 15 the week of the **7 or 14 February 2022**. Deadline for submission of final Production, Communications and Activity Sheets **4pm Wednesday 23 February 2022**.

Evaluation Presentation (15%)

Group presentation evaluating your public engagement activity. Presentation to be delivered in session 17 **Monday 28 February 2022**. Deadline for submission of slides and Evaluation Report **4pm Wednesday 02 March 2022**.

Marking criteria: pass = 40% or above

Assessments will be marked by course leads Rosie Fuller and Liz Danner. A selection will be reviewed by an external examiner in line with College examination policy.

Oral presentations will be presented and recorded in Zoom. Written assignments and supporting materials must be submitted using the Blackboard portal. Please refer to the [Humanities and Social Sciences Student Handbook](#) for essential information regarding assignments including how to request an extension for documented mitigating circumstances. Managing your workload is an important skill, and pressure of work cannot be regarded as grounds for an extension.

Assessment topics

Independent Work:

Activity Observation (10%)

Throughout the module we will discuss case studies of public engagement activities and programmes to identify principles of best practice. We encourage you to take advantage of opportunities to attend and observe public engagement activities to hone your understanding of what works and gain inspiration for your own group project.

Within the first term please attend one public engagement activity or event, online or in-person. Following the template provided in session 2, consider the following questions and submit your observation by **4pm Friday 17 December 2021**.

- Details of the activity itself: Who led the activity? When, where? What format?
- Who is the target audience and who attended? Was this successfully marketed to reach this audience?
- What is the aim of this activity? How was this evaluated?
- Rate your experience. Would you recommend to attend?

Class participation (40%)

This module will be interactive and will rely on the class getting involved in activities and discussions to share experiences, insights and thoughts. Therefore, you will be assessed on class participation. Expectations around class participation (including whether participating in the course synchronously or asynchronously) in preparation for sessions, within sessions and in group work, will be outlined during session 1.

Assessment will take place through a self-reflection exercise and supported by tutor observations. You will be asked to reflect on your participation throughout the module under the following headings and submit your comments at the end of Spring term **4pm Friday 25 March 2022**. More details and the template for this exercise will be provided at the end of the Autumn term.

- **Attendance and active participation** during of synchronous sessions (such as being involved in discussions, asking questions or providing comments, considering the content of the sessions and taking part in activities). Or for asynchronous attendees, participation in relevant class activities following the session (such as online polls, worksheets and discussions).
- **Collaborative team working** throughout course (not only in your group project, including behaviour and role within small group activities, pair work during class and supporting the learning of others)
- **Role played in group project** (the work or responsibilities you took on and how you supported your group to develop and deliver your activity and presentations)
- Other preparation and engagement within sessions, with module content and with fellow students

The [Humanities and Social Sciences Student Handbook](#) provides some further guidance around class participation.

Group Project:

For the practical portion of this module you will work in small groups to design, plan, deliver and evaluate a public engagement activity exploring current Imperial research. Your activity will contribute to [Imperial Public Engagement programmes](#) for local family, adult, school and/or patient audiences. You will have the support of Imperial staff in the design and implementation of your activity. Each group will work with an Imperial researcher to translate their research into a hands-on public engagement activity. Groups will be assigned and the project discussed in more detail in session 4. You will also be given the detailed Group Project Pack.

Planning Presentation (15%)

Task: Following a kick-off meeting with your researcher, design a hands-on public engagement activity exploring their research. As a group present your activity concept and delivery plan to the group in session 8 on **Monday 29 November 2021**. Deadline for submission of slides and Planning Document **4pm Wednesday 01 December 2021**.

Your 7-10 minute presentation should cover the following:

- The **aims** for the engagement activity and the changes you hope it will lead to
- An overview of the target **audience** and how you have considered your audience in the design of your activity
- Details of the **activity** you propose and how you will go about delivering it
- How you will **evaluate** your engagement and know whether your activity is successful

Your presentation should be no longer than 10 minutes. There will be an additional up to 5 minutes for questions from tutors and the class. All members of your group should present. You may use slides, props and other media but all members of the team should speak alongside these.

In preparation for your presentation you are expected to have a **Kick-off Meeting** with your researcher, conduct audience research and complete your draft **Planning Document**. You may also wish to meet with your group outside of class.

Engagement Activity (20%)

Task: Develop and deliver a hands-on public engagement activity exploring Imperial research outside of class during the week of the **7 or 14 February 2022**.

Your activity should:

- Enable an opportunity for a targeted public audience to take part in two-way engagement
- Relate to an area of Imperial's research
- Have clear aims
- Demonstrate good practice in public engagement
- Fit within the Imperial Programme format and brand, such as Imperial Lates

All members of your group must contribute to the development, delivery and evaluation of your activity. Though you are expected to work collaboratively, each group member will take on one or more roles with final responsibility for aspects of the activity, such as submitting marketing copy. This will be covered in more detail in the Group Project Pack. Each group will have the support of a member of engagement staff to offer feedback and advise on activity logistics.

As part of the development of your activity you are expected to liaise with your researcher, complete the Production Crib and Comms Sheets and create a summary Activity Sheet. You may also wish to meet with your group and practice your activity outside of class. Deadline for submission of final Production, Communications and Activity Sheets **4pm Wednesday 23 February 2022**.

Evaluation Presentation (15%)

Task: Collect feedback and evaluate your engagement activity. As a group present your evaluation and personal reflections to the group in session 8 on **Monday 29 November 2021**. Deadline for submission of slides and Evaluation Report **4pm Wednesday 02 March 2022**.

Your 7-10 minute presentation should cover the following:

- A summary of the **delivery** of your activity, what went well and what challenges did you face?
- Reflection on your **aims** for the engagement activity and the changes you hoped it will lead to
- An overview of the **audience** experience including quantitative numbers and qualitative feedback
- Any **changes** you would make if you were to deliver the activity again.

Your presentation should be no longer than 10 minutes. There will be an additional up to 5 minutes for questions from tutors and the class. All members of your group should present. You may use slides, props and other media but all members of the team should speak alongside these.

In preparation for your presentation you are expected to collect audience feedback, statistics and/or observations and create a short **Evaluation Report**. You may also wish to meet with your group outside of class.

Additional Information and Student Support

We are keen to support you and your studies within this module and in your time at Imperial. We understand that the current situation may bring additional challenges and are available to confidentially discuss your learning needs via email and chat.

The following resources and services are also available to support your studies:

- [Imperial Horizons- Manage your Module](#): Brings together information on Horizons module options, enrolment, withdrawal and disability support.
- [Imperial Success Guide- remote learning](#): Includes tips, advice and resources for remote learning.
- [COVID19- Updates and Guidance: Student Guidance](#): Provides latest guidance for Imperial students.
- [Disability Advisory Service: Current Students](#): Provides confidential advice and support for all students with diagnosed or undiagnosed learning, health and access needs.

Module outline

AUTUMN TERM

Introduction and Context

Session 1, 11 October. What is public engagement?

In the first session of this module we discuss our experiences of public engagement and begin to build a definition of what we mean by public engagement using Societal Engagement at Imperial as a case study. We will also go over the module structure, discuss expectations for participation and assessments.

Preparation

Read through [Our strategy for engaging with society](#). Consider our aims for engagement. Who are our target audiences? Why do we want to engage them? Share your thoughts and experiences in this short [Menti](#).

We are keen to support your learning within sessions and throughout the module. Please let us know a bit more about your learning needs in this [short Qualtrics](#) before the first session.

Extra reading

ICL (n.d.) 1. *Getting Started: Why should I engage?* [Online]. Engagement Toolkit. Available from: <https://www.imperial.ac.uk/be-inspired/societal-engagement/about-us/why-engage/>

More about our engagement strategy here at Imperial College London:

- Imperial College London (2017) [Public Engagement with Research: Strategic Plan](#). [Online]. Available from: <https://www.imperial.ac.uk/media/imperial-college/about/leadership-and-strategy/associate-provost-ap/public/PublicEngagementStrategy.pdf>.
- Imperial College London (2020) Imperial College London Strategy 2020-25 p30-31. [Online]. Available from: <https://www.imperial.ac.uk/media/imperial-college/about/leadership-and-strategy/strategy-2020-2025/public/CollegeStrategy2020-2025.pdf>

Stilgoe, J., Lock, S.J. & Wilsdon, J. (2014) Why should we promote public engagement with science? *Public understanding of science (Bristol, England)*. [Online] 23 (1), 4–15. Available from: [doi:10.1177/0963662513518154](https://doi.org/10.1177/0963662513518154).

Session 2, 18 October. Your audience: The public

Effective public engagement begins with understanding your audience- what they know, think, feel, need and want. Being specific about your target audience (s) enables you to create an approach that will be accessible and appealing to that group. Drawing on surveys and case studies, we explore public attitudes to science and research, discuss our own experiences and motivations to take part in public engagement and consider ways to engage these audiences.

Preparation

Since 2000 the Public Attitudes to Science (PAS) survey has been tracking attitudes to science, scientists and science policy among the UK public. Consider trends illustrated in the [Public Attitudes to Science 2019 Infographic](#). What surprised you?

Science capital is one framework that can begin to explain why some people see science as ‘for them’ and some do not. Watch this short video [Science Capital - an introduction](#) and listen to podcast Research for the Real World interview with researcher Louise Archer, [How “Science Capital” can help us address inequalities in STEM participation](#).

Extra reading

Selection of public attitude surveys:

Collection of Public Attitudes to Science (PAS) reports from 2000-2019. [Online]. Available from: <https://www.gov.uk/government/collections/public-attitudes-to-science>

- Department for Business, E. and I.S. (2020) *Public Attitudes to Science 2019*. [Online]. Crown Copyright, Open Government License v3.0. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/905466/public-attitudes-to-science-2019.pdf.

Collection of Wellcome Monitor UK reports 2012-2020. [Online]. Available from: <https://wellcome.org/what-we-do/our-work/wellcome-monitor>

- J. Curtice (ed.) (2018) Science: Have the British public really had enough of experts? In: *British Social Attitudes: The 36th Report*. 36th edition. [Online]. pp. 1–38. Available from: <https://wellcome.org/sites/default/files/british-social-attitudes-36-science.pdf>.
- NatCen (2020) Wellcome Monitor 2020: COVID-19 Study. [Online]. Available from: <https://wellcome.org/sites/default/files/wellcome-monitor-2020-covid-19-report.pdf>
- NatCen (2020) Wellcome Monitor 2020: How the British public engage with health research. [Online]. Available from: https://cms.wellcome.org/sites/default/files/2021-02/wellcome-monitor-2020-public-engagement_0.pdf

Gallup (2019) *Wellcome Global Monitor- First Wave Findings*. [Online]. Available from: <https://wellcome.org/sites/default/files/wellcome-global-monitor-2018.pdf>.

More about Science Capital:

- Archer, L. et al (2015) “Science capital”: a conceptual, methodological and empirical argument for extending bourdieusian notions of capital beyond the arts. *Journal of Research in Science Teaching*, 52 (7), 922-948. Available from: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/tea.21227>
- Science Museum Group (2021) *Our approach and science capital*. [Online]. Available from: <https://learning.sciencemuseumgroup.org.uk/our-approach/>
- Science Museum Group (2021) *Engaging audiences with STEM: An equitable approach informed by science capital*. [Online]. Available from: <https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2021/06/Engaging-all-audiences-with-STEM.pdf>

Session 3, 25 October. University context: Role of the researcher

In this session we consider the role of public engagement as part of the wider relationship between STEM (science, technology, engineering and maths) research, the higher education sector and society. We will look at the influence of funding in shaping public engagement programs and the changing role of the researcher as communicator and advocate. We discuss your motivations for engagement and consider the benefits for researchers and institutions.

Preparation

Please read through the [Key Findings](#) summary of the Factors Affecting Public Engagement by UK Researchers.

Wellcome Trust (2015) *Factors Affecting Public Engagement by UK Researchers*. [Online]. Available from: <https://wellcome.ac.uk/news/what-are-barriers-uk-researchers-engaging-public>.

Extra reading

Imperial College London (n.d.) *Engagement Skills and Attributes Map*. [Online]. Available from: <https://www.imperial.ac.uk/be-inspired/societal-engagement/training/engagement-skills-and-attributes-map/>

Vitae (2011) *Vitae Researcher Development Framework*. [Online]. Available from: <https://www.vitae.ac.uk/vitae-publications/rdf-related/researcher-development-framework-rdf-vitae.pdf/@@download/file/Researcher-Development-Framework-RDF-Vitae.pdf>.

David Owen, H.F. and K.L. (2016) *The State of Play: Public Engagement with Research in UK Universities*. [Online]. Available from: https://www.publicengagement.ac.uk/sites/default/files/publication/state_of_play_final.pdf

British Science Association (2014) *A changing Sector: Where is Science Communication Now?* [Online]. 2014. Available from: <https://www.britishtscienceassociation.org/whereisscicommnow>

Research Councils UK. (2013) *Concordat for Engaging the Public with Research*. [Online]. Available from: <https://www.ukri.org/wp-content/uploads/2020/10/UKRI-151020-ConcordatforEngagingthePublicwithResearch.pdf>.

Planning Engagement

Session 4, 01 November. Group Project: Groups and roles

For the practical portion of this module you will work in small groups to design, plan, deliver and evaluate a public engagement activity exploring current Imperial research. In this session we will assign groups and discuss the project in more detail.

Preparation

Following on from the previous session on the role of the researcher, consider your current skills, public engagement experience, and aims for this module. Please complete a short self-assessment of your [Societal Engagement Skills and Attributes Map: 1 on Qualtrics](#). We will re-visit this activity at the end of the module. You may wish to download a pdf of your responses at the end of the survey for reference for your class participation self-reflection exercise.

Before the session you will be **emailed** the Group Project Pack with details of the activity program, group roles, project timelines and assessment criteria. Please bring any questions to the session.

Extra reading

Our [Engagement Toolkit](#) has a range of guides to help you organise your public engagement. You may find the following resources helpful for your Group Project.

- *How do I plan an engagement activity?* [Online]. Engagement Toolkit. Available from: <https://www.imperial.ac.uk/media/imperial-college/be-inspired/societal-engagement/public/How-do-I-plan-a-public-engagement-activity.pdf>
- *How do I generate ideas for public engagement?* [Online]. Engagement Toolkit. Available from: <https://www.imperial.ac.uk/media/imperial-college/be-inspired/societal-engagement/public/How-do-I-generate-ideas-for-my-public-engagement-activity.pdf>
- *Engaging with adults* [Online]. Engagement Toolkit. Available from: <https://www.imperial.ac.uk/media/imperial-college/be-inspired/societal-engagement/public/How-do-I-engage-adults.pdf>
- *How do I embed evaluation in my public engagement activity?* [Online]. Engagement Toolkit. Available from: <https://www.imperial.ac.uk/media/imperial-college/be-inspired/societal-engagement/public/How-do-I-evaluate-my-public-engagement-activity.pdf>
- *How do design hands-on activities?* [Online]. Engagement Toolkit. Available from: <https://www.imperial.ac.uk/media/imperial-college/be-inspired/societal-engagement/public/How-do-I-design-hands-on-activities.pdf>

Wellcome Trust (2014) *Planning your public engagement activities: Step by step guide*. [Online]. Available from: <https://wellcome.org/sites/default/files/planning-engagement-guide-wellcome-nov14.pdf> .

Jane Hales. (2019) *What is audience understanding research?* [Online]. Available from: <https://sapioresearch.com/tutorials/audience-understanding-research>

Session 5, 08 November. Public engagement in practice: Dragons Den

Members of staff from the public engagement teams at Imperial will join the class for this session to explore how we work with different audiences. In our '**Engagement Dragons Den**', colleagues will present a pitch for funding for a hypothetical engagement idea to work with a specific target audience. As the group of funders, or 'dragons', you will need to decide which idea you support and would assign funding to. Come prepared to ask questions, discuss how the teams work at Imperial and hear about the many opportunities to get involved.

Preparation

Read through the funding criteria for the **Engagement Dragons Den** activity (provided in the previous session and on BlackBoard).

Review the Societal Engagement Framework outlined in [Our strategy for engaging with society](#) and the Societal Engagement webpages in preparation for meeting some of the team involved in these initiatives next week: <https://www.imperial.ac.uk/be-inspired/societal-engagement/>

Extra reading

Institute of Mechanical Engineering (2014) *Five tribes: Personalising Engineering Education*. [Online]. Available from: <https://www.imeche.org/policy-and-press/reports/detail/five-tribes-personalising-engineering-education>.

Bultitude, K. et al. (2011) The Rise and Rise of Science Festivals: An international review of organized events to celebrate science. *International Journal of Science Education (part b)*, 2, 165-188. Available from: <https://www.tandfonline.com/doi/full/10.1080/21548455.2011.588851>

Session 6, 15 November. Planning for success: Evaluating engagement

Engagement can have many benefits, both for the researchers, staff and students involved in designing and delivering activities, as well as the publics taking part. The key to successful engagement is understanding why you are doing it and what changes you hope to achieve through your interactions. This session will cover how to construct aims for engagement making use of existing frameworks. You will also explore different ways to evaluate your engagement and understand the impact of your activities.

Preparation

Read the online article on the [National Coordinating Centre for Public Engagement \(NCCPE\) website around Purpose](#). Consider what is the purpose or purposes for your engagement activity.

Listen to or read transcript of podcast [The Participatory Museum: An Interview with Nina Simon](#) with host Gerry Gaffney about Simon's approach to encourage, support and scaffold engagement within museums. Consider what does participation look like in these examples? Thinking about your engagement activity, how can you encourage and support social interaction, to move 'from me to we'?

Extra reading

Evaluation and reflection is useful for writing up engagement activities and sharing what you have done. Take a look at the case studies on the Patient Experience Research Centre blog for examples of engagement projects with health research and look at how the project leads have used feedback and observations to reflect on their projects and think about how they might improve them (particularly the reports from their grants scheme – PPI Grants): <http://www.imperial.ac.uk/blog/perc/category/case-studies/>

Funders for public engagement will ask for evaluation of the activities they have supported. This guidance from the Science and Technology Facilities Council is useful in thinking about how to plan evaluation and what funders might be looking for: <https://stfc.ukri.org/files/corporate-publications/public-engagement-evaluation-framework/>

Science Technology Facilities Council (2017) *Public Engagement Evaluation Framework*. [Online]. STFC. Available from: <https://stfc.ukri.org/files/corporate-publications/public-engagement-evaluation-framework/>.

Organizing Engagement (n.d.) *Spectrum of Public Participation*. [Online]. Available from: <https://organizingengagement.org/models/spectrum-of-public-participation/>

Wellcome Trust (2014) *Planning your public engagement activities: Step by step guide*. [Online]. Available from: <https://wellcome.org/sites/default/files/planning-engagement-guide-wellcome-nov14.pdf>.

Reed, Mark et al (2018) *A common standard for the evaluation of public engagement with research*. [Online]. Research for all. Available from: <https://www.scienceopen.com/document?vid=a7ffe736-af4b-42e0-b504-925c3a7defba>

Session 7, 22 November. Place-based engagement: White City Visit

In this session we explore the role of place and community within engagement activities and programmes with a visit to the [Invention Rooms](#), a unique space at Imperial's new White City campus where the local community and Imperial staff and students come together to collaborate, innovate and make. You will have an opportunity to tour this facility, meet some of our staff and try your hand at a range of table-top activities.

Preparation

The Invention Rooms include the [Makerspace](#) offering school and community programmes, [Hackspace](#) a cutting-edge workshop for Imperial staff and students, and the [Invention Rooms Café](#) and meeting rooms hosting public events and activities. Watch the [Invention Rooms introductory video](#) to get a feel for these spaces and hear from some of our visitors and facilitators. Please bring any questions about the facilities and programmes to the session.

Extra reading

Place-based engagement:

- Pop Up Science: Guide discusses the practicalities around large engagement projects and draws from lots of great examples. Ellen Dowell (2016) Pop Up Science: Transforming empty shops into creative spaces. [Online]. National Heart and Lung Institute. Available from: https://www.imperial.ac.uk/media/imperial-college/medicine/nhli/public-engagement/Pop_Up_Science_eBook.pdf
- Science in the Supermarket: This project was funded through the Societal Engagement Seed Fund and was run by an Imperial post-doctoral researcher. The website has lots of information about smaller engagement activities as well as some very useful practical information in the project report: http://www.superscience.org.uk/wp-content/uploads/2018/08/ScienceInTheSupermarket_Report_2018.pdf

Activities and demonstration ideas:

- British Science Association and Gatsby Charitable Trust (2015) *Demo Insights for Teachers from Science Communicators*. [Online]. Available from: <https://www.britishtime.com/app/uploads/2015/10/Demo-Insights-2015.pdf>
- Anon (2016) *Thirty Inspirational Ideas for CREST's 30th*. [Online]. British Science Association. Available from: https://issuu.com/britishtime/docs/30_inspirational_ideas_booklet

Creating visual aids:

- Carmine Gallo. (2020) *The virologist who created a 'swiss cheese' metaphor to explain the pandemic has a message for educators*. [Online]. Forbes. Available from: <https://www.forbes.com/sites/carminegallo/2020/12/10/the-virologist-who-created-a-swiss-cheese-metaphor-to-explain-the-pandemic-has-a-message-for-educators/?sh=65583c776335>
- Paige Jarreau. (2020) *Visual risk communication: Evidence-based tips for crafting powerful visual messages*. [Online]. Lifeology. Available from: <https://lifeology.io/visual-risk-communication-evidence-based-tips-for-crafting-powerful-visual-messages/>

Session 8, 29 November. Assessment: Planning Presentation

Assessed 7-10 minute group presentation your plans for your public engagement activity(15% mark). The class will observe each presentation, have 5 minutes to ask questions and provide constructive feedback and suggestions for each project. Please see Assessment Topics for further information. Deadline for submission of slides and Planning Document **4pm Wednesday 01 December 2021**.

Preparation

Complete any remaining tasks in preparation for your group presentation.

Extra reading

You may find these tips helpful in preparing for your online presentations:

- Jamie Gallagher (2021) *Setting up for your online presentation*. [Online]. Available from: <https://www.youtube.com/watch?v=ru6ByfcMxwA>
- Dom Barnard (2017) *Exercises to warm up your voice before a speech*. [Online]. Virtual Speech. Available from: <https://virtualspeech.com/blog/exercises-warm-up-voice-before-speech>

Session 9, 06 December. Marketing Engagement: Audience Models

Marketing and communication strategies are part of tailoring engagement activities to our different audiences. To promote our activities through channels our audiences will access and in ways they will find inviting we first need to understand their needs, interests and communication habits. We explore different audience models used by science organisations and museums to divide up, or segment, the general public into marketing groups.

Preparation

Read about the development of the British Science Association (BSA) Audience Model as part of their organisational strategy to engage the public with science in blog post [Revolutionising people's relationship with science](#) (2018) by chief executive Katherine Mathieson.

Explore the [10 Audience Spectrum segments](#) defined by the Audience Agency for museums and cultural heritage sites. Which segment are you?

Extra reading

British Science Association (2018) *Our Audience Model*. [Online]. Available from: <https://www.britishscienceassociation.org/our-audience-model>.

Science Museum Group (2021) *Engaging all audience with STEM: An equitable approach informed by science capital*. [Online]. Available from: <https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2021/06/Engaging-all-audiences-with-STEM.pdf>

Audience Agency (2021) *Audience Spectrum*. [Online]. Available from: <https://www.theaudienceagency.org/audience-spectrum>.

The Audience Agency has also tracked the impact of COVID-19, social distancing and lockdowns on the UK Audience Spectrum segments throughout the pandemic. Find out more about their research and findings at the [Audience Spectrum in the Time of Covid](#).

NCCPE (2018) *What Works: Engaging the Public through social media*. NCCPE, University of Bristol and University of West England. [Online]. Available from: https://www.publicengagement.ac.uk/sites/default/files/publication/what_works_engaging_the_public_through_social_media_november_2018.pdf

Session 10, 13 December. Inclusive Engagement: Museum Visit

For this session we will visit the V&A (Victoria and Albert) Museum, just down Exhibition Road towards South Kensington. You will explore a couple of galleries to experience public engagement from the audience perspective. During your visit you will be guided to think about how the content, interpretation, volunteers and space makes you feel about the subjects. We also consider who may feel excluded, what barriers prevent access and strategies to broaden access.

Preparation

Read [Equity, exclusion and everyday science learning: The experiences of minoritised groups](#) Zine by Sophie Wang summarising Emily Dawson's research. What are the barriers to engaging with museum collections? Who is excluded?

Watch short video [Science Capital and the Informal Learning Sector](#) by the Science Museum Group. How does their framing of Science capital differ from the Institute of Education in session 2? How do they address barriers to engagement?

Familiarise yourself with the V&A mission statement, under 'Our Mission'. [Online]. Available from: <https://www.vam.ac.uk/info/about-us#our-mission>

Extra reading

Emily Dawson (2019) *Podcast about "Equity, exclusion and everyday science learning: The experiences of minoritised groups"*. [Online]. Available from: <https://newbooksnetwork.com/emily-dawson-equity-exclusion-and-everyday-science-learning-the-experiences-of-minoritised-groups-routledge-2019/>.

Dawson, E. (2014) "Not Designed for Us": How Science Museums and Science Centers Socially Exclude Low-Income, Minority Ethnic Groups. *Science Education*. [Online] 98 (6), 981–1008. Available from: [doi:10.1002/sce.21133](https://doi.org/10.1002/sce.21133).

Averil Macdonald (2014) "Not for People like me?" Under-represented groups in science, technology and engineering. A summary of the evidence: The facts, the fiction and what we should do next. [Online]. SEPnet and WISE. Available from: <https://www.sciencecentres.org.uk/resources/academic-research/not-people-me-under-represented-groups-science-technology-and-engineering/>.

Science Museum Group (2021) *Science Capital in Practice: Foundations for the Future*. [Online]. Available from: <https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2021/07/Science-Capital-In-Practice.pdf>

SPRING TERM

Delivery and Communication

Session 11, 17 January. Role of the presenter

Leading engagement activities uses a range of communication skills to guide your audience, maintain their attention and ultimately convey your research. We observe and compare a range of formal and informal presenting styles. We explore the role of the presenter within different activities as host, guide, facilitator and audience proxy. We also discuss the role of experts and expertise, how science is presented and how we can make research accessible.

Preparation

Watch the first 5 minutes of online workshop [Nano: the spectacular science of the very \(very\) small](#) with how host Scott Oswald, Imperial physicist Dr Jess Wade and award-winning illustrator Melissa Castrillon. How does Scott introduce the guests and welcome workshop participants?

Listen to [Episode 450 of podcast 99% Invisible](#), in which host Roman Mars introduces a guest episode of podcast *Stuff the British Stole* (1.30-33.40) and interviews host and researcher Marc Fennell (35.20-48.37). Consider how each host positions themselves and their interviewees: How do they describe themselves, their background their expertise and experience? Who is invited to share their expertise? How is this presented?

Please read article *Science Slams as Edutainment* and consider the motivations of engaged adults attending these events. How can you build fun into your engagement activity? Niemann, P et al (2020) *Science Slams as Edutainment: A Reception Study*. *Media and Communication* (ISSN: 2183–2439) 2020, Volume 8, Issue 1, Pages 177–190. [Online]. Available from: <https://www.cogitatiopress.com/mediaandcommunication/article/view/2459/2459>

Extra reading

Podcasts showcasing a range of informational formats from conversational to highly scripted and referenced:

- [Imperial Podcast](#). Hosted by Gareth Mitchell. regular round-up of research, activities and awards around Imperial College London.
- [Diversifying Research Podcast](#). Host Fola Afolabi and her guests will critically consider how to improve the inclusion of underrepresented voices in research, with funding from the NIHR Imperial BRC Patient Experience Research Centre (PERC).
- [Scientists not the Science](#) Host Stuart Higgins interviews STEM researchers about themselves- their experiences, motivations and careers.
- [Science Vs.](#) 'Science Vs takes on fads, trends, and the opinionated mob to find out what's fact, what's not and what's somewhere in between.'
- [This Podcast Will Kill You](#). Disease ecologists Erin Welsh and Erin Allman Updyke explore the history of diseases, vaccines and medical treatments.
- [Why Aren't You a Doctor Yet?](#) Hosts Suhail Patel, Hana Ayoob, Oz Ismail and Alex Lathbridge explore the intersections of STEM, culture and race

Wellcome (2017) *How to be convincing | join the #expertdebate*. [Online]. Available from: <https://www.youtube.com/watch?app=desktop&v=qX8UsLJprU&feature=youtu.be>.

Stuart Higgins. (2016) *How to record, edit and public a short audio interview- Introduction*. Podcast: *Scientists not the Science* [Online]. Available from: <https://www.scinotsci.com/episodes/2016/6/12/how-to-record-edit-and-publish-a-short-audio-interview-introduction>

Fs (n.d.) *Richard Feynman teaches you the scientific method*. [Online]. Available from: <https://fs.blog/2009/12/mental-model-scientific-method/>

Session 12, 24 January. Group Project: Piloting

Working within your group, you will have an opportunity to pilot your activity with the class and get constructive feedback and suggestions in preparation for your assessment.

Preparation

Prepare materials and practice to pilot aspects of your engagement activity with the class in this session.

Session 13, 31 January. Language and Storytelling

Within public engagement we communicate a wide range of information through written materials, presentations and dialogue with our audiences. To engage audiences both the content- what you say- and the method- how you say it- need to be tailored to your audience. In this session we observe and practice different storytelling techniques and consider how to use inclusive and accessible language.

Preparation

Speakers and comedians use a variety of 'hooks' to draw in their audience, engage their emotions and gain their attention. Go to [Hooks Activity Menti](#). Read through the description of presenting hooks. Then watch the first minute of each video and identify which hooks each presenter uses. This should take about 15 minutes.

Listen to [episode 432 of podcast 99% Invisible, the Batman and the Bridge Builder](#) (1.40-35.50), a surprising story of how engineers helped make homes for bats and won the hearts of locals by listening and giving clear information. How did Merlin Tuttle win public support? Consider the structure, how did the podcast tell this story? What made it compelling?

Extra reading

Watch Storytelling and hooks in Action: video: FameLab UK Final 2017 - Alex Lathbridge (Bristol) [Online]. Available from: <https://www.youtube.com/watch?v=5qOvKbJX0ks>

NCCPE (2017) *How to ... use narrative and storytelling*. [Online]. Available from: https://www.publicengagement.ac.uk/sites/default/files/publication/how_to_use_narrative_and_storytelling.pdf

Wellcome (2017) *Beware double meanings when you talk science | join the #expertdebate*. [Online]. Available from: <https://www.youtube.com/watch?v=Mscn8QBu2Ws>

Natural History Museum (n.d.) *Nature of Science Terms*. [Online]. Available from: <https://www.nhm.ac.uk/content/dam/nhmwww/about-us/visitor-research/nature-of-science-terms.pdf>.

Example science stories: Beyond Curie is a design project that highlights women in STEM. [Online]. Available from: <https://www.beyondcurie.com/>

Session 14, 07 February. Group Project: Rehearsal

Working within your group, you will have an opportunity to rehearse your activity and get constructive feedback and suggestions in preparation for your assessment.

Preparation

Prepare materials and practice to rehearse your engagement activity with the class in this session.

Session 15, 14 February. Assessment: Engagement Activity Delivery

Session time to be used for delivery of project. This may be outside of normal session hours.

Preparation

Complete any remaining tasks in preparation for your group engagement activity.

Evaluation

Session 16, 21 February. Reflection and Reporting

Reflection, taking time to consider our own perceptions and performance, is an important part of effective engagement practice. Reflecting on what went well and what you might change is useful for writing up engagement activities and sharing what you have done. We explore how to report our evaluation and how to use feedback to refine your engagement activities using Imperial examples.

Preparation

Pop-up shops exploring heart and lung health by Imperial College London were shortlisted for the NCCPE Engage Awards in 2016 in the STEM category. Read through the case study and consider how the report is organised, what information is included and how they talked about their 'lessons learned' for future engagement.

NCCPE (2016) Heart and Lung Shops. [Online]. Available from:

<https://www.publicengagement.ac.uk/do-engagement/inspire-me/case-studies/heart-and-lung-shops>

Extra reading

Project reports for two public engagement pop-up shops, created by an Imperial team.

- Amy Seakins (2015) *Heart and Lung Repair Shop: Evaluation Report*. [Online]. Imperial College London. Available from: <https://www.imperial.ac.uk/media/imperial-college/medicine/nhli/public-engagement/theheartandlungrepairshopevaluationreportfull.pdf>
- Amy Seakins (2016) *Heart and Lung Convenience Store: Evaluation Report*. [Online]. Imperial College London. Available from: <https://www.imperial.ac.uk/media/imperial-college/medicine/nhli/public-engagement/heart-and-lung-convenience-store-evaluation-report.pdf>

John Holden (n.d.) *Guide: Making the case using evidence*. [Online]. Audience Agency. Available from: <https://www.theaudienceagency.org/resources/top-tips-advocacy>.

Stevenson, E. & McArthur, J. (2015) Triple nexus: improving STEM teaching through a research-public engagement-teaching nexus. *The international journal for academic development*. [Online] 20 (3), 291–294. Available from: [doi:10.1080/1360144X.2014.995662](https://doi.org/10.1080/1360144X.2014.995662).

Session 17, 28 February. Assessment: Evaluation Presentation

Assessed 7-10 minute group presentation evaluating your public engagement activity(15% mark). The class will observe each presentation, have 5 minutes to ask questions and provide constructive feedback and suggestions for each project. Please see Assessment Topics for further information. Deadline for submission of slides and Evaluation Report **4pm Wednesday 02 March 2022**.

Preparation

Complete any remaining tasks in preparation for your group presentation.

Role of Public Engagement

Session 18, 07 March. Research, Communication and Dialogue

We expand upon the role of the researcher explored in session 3 to consider how academic research can inform, support and respond to public needs and concerns. We discuss how researchers can clearly communicate their work and support open dialogue. Drawing on current research we discuss factors impacting the spread of misinformation and effective strategies to be convincing.

Preparation

Read the summary of [First Draft's Essential Guide to Understanding Information Disorder](#) outlining key terms and challenges of misinformation in modern media. What mis- and disinformation about STEM have you come across?

Watch a short video introducing [Four things to know about misinformation](#) from the Debunking Handbook 2020. What 'sticky' misinformation have you seen in the media?

Extra reading

Catherine Franche (2020) Tackling Misinformation: A collection of research and resources for science engagement professionals: Addressing the spread of inaccurate information about science and scientists. [Online]. The Kavli Foundation and Ecsite. Available from: https://www.ecsite.eu/sites/default/files/tackling_misinformation_a_resource_document_for_science_engagement_professionals.pdf.

Claire Wardle (2019) *First Draft's Essential Guide to Understanding Information Disorder*. [Online]. Available from: https://firstdraftnews.org/wp-content/uploads/2019/10/Information_Disorder_Digital_AW.pdf?x32863

Lewandowsky, S. (2020) *The Debunking Handbook 2020*. [Online]. Available from: <https://www.climatechangecommunication.org/debunking-handbook-2020/>.

Stephan Lewandowsky and John Cook (2020) *The Conspiracy Theory Handbook*. [Online]. Available from: <https://www.climatechangecommunication.org/conspiracy-theory-handbook/>.

Mohr, A. & Gibbs, B. (2013) *Which publics? When? Exploring the policy potential of involving different publics in dialogue around science and technology*. [Online]. Available from: <http://eprints.nottingham.ac.uk/id/eprint/2896>

Sujatha Raman et al. (2019) *Making science public: challenges and opportunities*. [Online]. Available from: <https://nottingham-repository.worktribe.com/output/2187813>

Sarah Hartley, Sujatha Raman, Alexander Smith, & Brigitte Nerlich (eds.) (2018) *Science and the politics of openness : Here be monsters*. Manchester University Press. Available from: <https://library.oapen.org/handle/20.500.12657/30733>

Session 19, 14 March. Citizen Science, Co-creation and Community-led Engagement

We explore the many ways the public can contribute to academic research, focusing on citizen science projects, co-creation models of engagement and community-led engagement activities. We discuss the benefits and challenges of these approaches through real world examples.

Preparation

Read case study for NCCPE Engage Awards 2016 winner in the STEM category SMASHfestUK and watch short film '[How to survive Armageddon](#)' co-created as part of SMASHfestUK 2015- Asteroid. How does the festival respond to audience interests and needs? What do you think of the approach, is it really science?

NCCPE (2016) SMASHfestUK. [Online]. Available from: <https://www.publicengagement.ac.uk/do-engagement/inspire-me/case-studies/smashfestuk>

Extra reading

UCL Press (2018) *Citizen Science: Innovation in Open Science, Society and Policy*. [Online]. Available from: <https://discovery.ucl.ac.uk/id/eprint/10058422/1/Citizen-Science.pdf>

Citizen Science Projects and Platforms:

- [Citizen Science: Fast Answers](#). BBC: Do Something Great website. Kid-friendly introduction to what Citizen Science is and how to take part.
- [Citizen Science](#) at the Natural History Museum: Listing of current projects
- [EU-Citizen.Science](#) Platform for sharing Citizen Science projects, resources, tools and training.
- [nQuire](#): Explore your world. Wide range of digital projects collecting data.
- [X-Polli:Nation](#) project aims to get our communities buzzing to create maintain and monitor pollinator-friendly habitats.
- [Zooniverse](#): People-powered research. Wide range of digital projects analysing large data sets.

Citizen Science UK National Surveys:

- [Big Butterfly Count](#), Butterfly Conservation Society. Annual UK butterfly and moth count.
- [Big Garden and Schools BirdWatch](#), Royal Society for the Protection of Birds (RSPB). Annual UK bird count.
- [BIG Hedgehog Map](#): mapping sightings of live and dead hedgehogs and hedgehog holes
- [Great British Intelligence Test](#), Imperial College London and BBC.
- [Great British Welling Survey](#), (2020) Imperial College London, Kings College London, University of Cambridge and University of Chicago.
- [People's Trust for Endangered Species Surveys](#) in your garden, the countryside and on the road.
- [Project Splatter](#), Cardiff University project documenting all animals killed on roads

Centre for Social Justice and Community Action, D.U. and N.C.C. for P.E. (2012) *Community-based participatory research: A guide to ethical principles and practice*. [Online]. Available from: https://www.publicengagement.ac.uk/sites/default/files/publication/cbpr_ethics_guide_web_november_2012.pdf

NCCPE (2017) *Working with Local Communities*. [Online]. NCCPE, University of Bristol and University of West England. Available from: https://www.publicengagement.ac.uk/sites/default/files/publication/working_with_local_communities.pdf

The Audience Agency and CultureHive (2016) *From Them to Us: The art of leading with an audience focus*. [Online]. Available from: <https://www.theaudienceagency.org/resources/report-from-them-to-us>

Session 20, 21 March. Reflection and next steps

Reflect on your learning across the course and explore the opportunities to get involved in engagement beyond the module.

Preparation

Reflecting on your learning across the module, re-visit the [Societal Engagement Skills and Attributes Map](#) and your responses from the previous mapping exercise. How have your skills and experience changed? Please complete a short self-assessment of your [Societal Engagement Skills and Attributes Map: 2 on Qualtrics](#). You may wish to download a pdf of your responses at the end of the survey for reference for your class participation self-reflection exercise.

Complete any remaining tasks in preparation of your class participation written reflection (40% mark). Deadline for submission **4pm Friday 25 March 2022**.

Extra reading

Keep in touch and get involved with public engagement at Imperial:

- [Sign up to our monthly societal engagement newsletter](#) to hear about new engagement opportunities
- Volunteer with our engagement programmes. Read more about volunteering <https://www.imperial.ac.uk/be-inspired/societal-engagement/get-involved/volunteer/>
- Check out more resources and case studies in our [Engagement Toolkit](#).

Research for All is a journal dedicated to public engagement research. Articles are written by engagement and social science researchers, public engagement staff and scientific researchers doing engagement themselves. Take a look at some of the most recent articles: [https://www.ucl-
ioe-press.com/research-for-all/](https://www.ucl-ioe-press.com/research-for-all/).