UNIVERSITY OF CAMBRIDGE

Programme Specification 2020-21

Postgraduate Diploma in Science Communication

1	**Awarding body**	University of Cambridge
2	**Teaching institution**	University of Cambridge, Institute of Continuing Education
3	**Programme accredited by**	None
4	**Name of final award**	Postgraduate Diploma
5	**Programme title**	Science Communication*
6	**UCAS**	N/a
7	**JACS Code**	P9
8	**Relevant QAA benchmark statement(s)**	None
9	**Qualifications framework level**	FHEQ Level 7, PGT
10	**Date specification last reviewed**	September 2023

* Cognate Faculty endorsement - Faculty of Biology

The Postgraduate Diploma in Science Communication is part of the Institute of Continuing Education's award-bearing programme at FHEQ level 7, offered to part-time adult students.

ICE is a General Board, non-School institution whose purpose can be defined in two complementary ways. It is a conduit both for transmission of the University's knowledge and research, and for enabling members of the public to access higher education courses, whether for personal interest or professional development, on the other. In these ways it contributes significantly to the University's public engagement and widening participation commitments.

Introduction

Over the last thirty years, science communication has gained new significance for scientific careers and in policy. The engagement of the general public with the scientific culture is seen as vital for a healthy democracy. The need for scientists to effectively communicate with the wider public has been recognised by major funding bodies and learned societies.

The importance of effective and relevant science communication has been formally recognised by the House of Commons Science and Technology Committee in their recent report, *Science Communication and Engagement*.[1]

Science communicators are now dealing with often complex and sensitive problems, in public health, energy economics, climate politics and research funding, in the private and public sectors and at local and global scales. This present a great challenge to science communicators' intellectual, social and practical skills. It requires a deep appreciation of the theories of effective communication and engagement, the thoughtful use of innovative and

[1] https://publications.parliament.uk/pa/cm201617/cmselect/cmsctech/162/162.pdf

practical approaches, an understanding of the needs of the audience, and an awareness of the broader ethical and societal implications of the science. High quality training in science communication will provide these skills and expertise, and fits with the underlying principles of the Concordat for Engaging the Public with Research[2].

Educational aims

The programme aims to develop individual science communicators who are able to adopt an informed, responsive, discipline relevant and critically reflective approach to the practical delivery of science communication at a high level.

The course will:

- Provide professionally relevant teaching and learning in the theory, knowledge and skills that underpin, and are at the forefront of, science communication and engagement.
- Develop and create skilled science communicators with the necessary expertise and understanding to engage in and deliver well-informed high-quality science communication activities appropriate to the needs of their discipline and their audience.
- Promote a comprehensive understanding of the practical and ethical considerations relevant to science communication.
- Provide students with the theoretical knowledge and the practical opportunity to apply their learning in a work-relevant and practical manner through the design, delivery and evaluation of a specific science communication or engagement activity.
- Develop in students the judgement, confidence and responsibility that will enable them to be proactive, responsible and discriminating in their interventions at a high level in their profession.

Learning outcomes

The over-arching learning outcomes for the programme are:

<u>Knowledge and understanding</u>

- To enhance the students' systematic knowledge and critical understanding of the importance, relevance and breadth of science communication in the modern world.
- To increase student understanding of the academic and theoretical knowledge that underpins effective communication and engagement, including fundamental issues and current debates in communication theory, sociology, politics, ethics, psychology and history of science.
- To develop students' ability to critically evaluate subject matter to identify what is worth, and what should be, reported.
- To enable students to describe and critique key practical techniques and approaches used for science communication.
- To create an enquiring perspective to enable critical and evaluative discussion that extends student understanding of key ethical and moral issues in the communication of science.
- To develop an appropriate understanding of the available methods for communicating with and engaging new audiences with diverse professional,

[2] http://www.rcuk.ac.uk/Publications/policy/perConcordat/

specialist and non-specialist backgrounds and to understand how and when to apply these methods.
- To provide a conceptual understanding of the requirements and importance of science communication in terms of the Impact agenda in Higher Education.

Skills and other attributes

- To design, implement and evaluate a science communication activity from start to finish.
- To gain discipline-specific skills for the delivery of a wide-range of science communication approaches.
- To develop the confidence, judgement and social skills for leadership roles in their profession.

Programme structure

The Postgraduate Diploma (PgDip) is a two-year part-time programme resulting in 120 FHEQ (Framework for Higher Education Qualifications) level 7 credits and a University of Cambridge award. There are six taught units structured as outlined below. Units 1-3 also constitute the PgCert in Practical Science Communication which can be studied as a discrete qualification.

Unit 1: The fundamentals of practical science communication

Aim: To provide students with a theoretical, academic and practical underpinning of the knowledge and understanding required to be an effective and engaging communicator. To instil the ethical and critical awareness relevant to identify the importance, the relevance, and the caveats of science communication from a professional perspective.

Indicative content:
- Developing an understanding of what science communication is and why it is important; connections with the Impact agenda in Higher Education; the relationship between science and the media.
- The psychology and theory of effective engagement and communication
- Identifying, understanding and engaging your audience; the use of storytelling and narrative; key skills for science communication.
- Critical evaluation of science - determining what should be communicated, what is worth communicating and the ethical elements of science communication.
- Critical analysis of science communication case studies.
- Effective evaluation of the design, delivery and success of science communication.

Assessment: Summative assessment of a critical analysis of a range of science communication case studies accompanied by a piece of personal reflection (~3,000 words). Formative assessment of up to 4 short science communication pieces that contribute to an end of course portfolio.

Unit 2: The art of practical science communication

Aim: To enable students to make value-based judgements combining discipline specific factors, academic theory, and practical considerations, to ensure they are equipped to choose and deliver the most appropriate form of science communication.

Indicative content:

- Practical skills training, underpinned by an academic basis, in the major techniques and approaches employed in science communication, such as: journalism, article writing, blogs & online writing, social media platforms, videos and vlogs, broadcasting, public events, and museums.

Assessment: Summative assessment of an evaluation of a specific science communication technique consisting of a written critique (~1,500 words) along with the production and delivery of a visual presentation such as a video, poster or talk. Formative assessment of up to 4 short science communication pieces that contribute to an end of course portfolio.

Unit 3: Designing and delivering practical science communication

Aim: To enable students to apply and develop their learning from Units 1 and 2 through the design, production, delivery and evaluation of a high-quality and discipline appropriate science communication activity.

Indicative content:

- Online and Tutor-based support for activity design, implementation, and evaluation.
- Delivery of science communication activity of the student's choice.
- Reflective evaluation of the design and delivery of the science communication activity.

Assessment: Summative assessment of a logbook style portfolio of the pitch, production, delivery and evaluation of an actual science communication event accompanied by a reflective piece on the process and experience. Formative assessment of up to 4 short science communication pieces that will contribute to an end of course portfolio.

Unit 4: Knowledge, authority and expertise

Aims: This unit draws on the literature from the sociology of science to problematise science as a form of knowledge and as a social institution. In particular, it asks how science commands respect as expertise, and explores what happens if this respect is withheld. Thus the unit explores, at a fundamental level, the relationships between science, politics and publics in terms of authority, trust, and public culture. The unit will alert the students to theory and case studies for:

- understanding the historical emergence of science as a distinct form of knowledge, and the emergence of science communication as culture
- responding critically to professional and public claims to expertise from scientists and others who use scientific knowledge
- gaining insight into the use of knowledges as vehicles for, and expressions of, ideologies about science, politics and society
- understanding the cultural significance of non-scientific knowledges about nature, the universe and the self
- developing a symmetrical analytical approach to understanding challenges to science as knowledge
- understanding the 'postmodern turn' and its consequences for science and science communication

Indicative content:

- The history of scientific knowledge: From the formation of community and the emergence of empiricism in the 17th century, to the campaigns about evidence, testing and reproducibility of the present day.
- Scientists as experts: How science was recognised as a profession and gained authority in society; the tension between objectivity and moral engagement; questions of trust in science.
- Science as politics: The role of science communication in putting forward particular ideologies; and the deployment of scientific experts for political ends.
- Other knowledges about nature: How animism, spiritualism, holism, materialism etc. frame lay and scientific ideas about the natural world, and what happens when 'isms' collide.
- Challenges to science: From romanticism to homeopathy: when other knowledge communities react to science; thinking beyond the cognitive
- Science and postmodernity: science is associated with the 'modern era' of history and tends to reject relativism; can it survive postmodernity in its present form?

Assessment: two written exercises, one academic essay and one piece of journalism.

Unit 5: Contexts and issues in science communication

Aims: This module will develop students' capacity to understand and their skills for particular sectors. It will also alert students to the key contemporary issues in science communication. It will:

- encourage adaptability towards a range of professional and ideological contexts
- alert students to trends, policies and concerns that frame science communication of the day
- develop a reflexive process of communication that students can use to more effectively serve a wide range of audiences and interests

Indicative content: This module will consider the current preoccupations and challenges of science communication, and assess how these are played out in a range of institutional contexts. These contexts will be chosen for salience but could include:

- the corporate world
- the public sector
- government
- regulation
- NGOs
- charities
- the education sector (informal, formal and life-long learning)
- the scientific community and its critics

Students will research one or more topics and lead a discussion including guest tutors. Topics will vary depending on contemporary concerns; however, they might include:

- engagement for democracy: is this a real possibility?
- diversity: would science communication for minorities be distinctive, or even appropriate?
- science communication and capitalism: are we compromised by commercialism?
- science and religion: alternatives to the conflict model
- philanthropojournalism: changing the stories or just changing the money?

- cancer charities: what use are fun runs and cake sales in a billion dollar drug market?

Assessment: one written and one spoken/visual item, based on the materials developed for the student-led sessions. The assessment is described in more detail in the Overall Assessment section later in this Handbook.

Unit 6: Diploma project proposal

Aims: this module enables students to develop and present a project proposal, drawing on their learning from Units 4 and 5, for a real-world context and to professional standards. The project may relate to their own workplace but could also be for another context such as a hospital waiting room or a political party conference.

Indicative content: the topics will be chosen by the students. Classes will cover regulation, funding, budgeting, risk assessment and pitching, and other skills and tools relevant to the students' choices of project. Students will seek and provide peer feedback.

Assessment: Students will produce a detailed proposal for an event or product that shows learning across the five prior units and a deep engagement with the content of modules 4 and 5.

Teaching methods

The programme is delivered through a combination of in-person teaching sessions and asynchronous approaches provided via the course virtual learning environment. Examples of the type of teaching methods use include, but are not limited to, live and pre-recorded lectures, seminars, group discussions, online readings, quizzes, data handling exercises, group activities and discussion forums. Peer-to-peer learning forms an important element of course teaching.

As is usual and necessary in science communication studies, the teaching methods will reflect the variety of disciplines and knowledges from which this field draws. Lectures, seminars, group and individual practical activity, professional skills workshops and online feedback are likely to feature, with tutors from academia and the communication professions. The students learn from both the content of what is being taught and the processes by which it is taught.

Online resources, provided through a Virtual Learning Environment (VLE), focus on specific science communication topics, case studies and the exploration of relevant and appropriate additional resources. Understanding of academic theory and practical application is facilitated through peer-based and tutor-led discussion and critical appraisal.

Assessment methods

The course is assessed through a mix of written academic and journalistic tasks, as well as tasks in other media. Assessment of practical components involves face to face delivery and the production of a logbook style portfolio. Units 1-3 include formative assessment of short science communication pieces that form part of a final portfolio submitted for summative assessment at the end of the Unit 3.

The students receive continual formative feedback throughout the course using a variety of strategies and techniques including evidence of regular reflection.

Entry and/or progression requirements

1. Applicants are normally expected to a hold a 2i degree or higher from a UK university or an equivalent from an overseas university in a STEM (science, technology, engineering, mathematics) or medical subject.

2. Applicants to the programme are expected to demonstrate proficiency in the English language; students whose first language is not English must be able to satisfy the current English Language Competence requirements of the University's Board of Graduate Studies in the year in which they apply for admission to the course.

Management of teaching quality and standards

The University ensures high standards of teaching and learning in the following ways:

- The completion of Annual Quality Updates by each Faculty and Department, to enable central overview of provision and assist in dissemination of good practice.
- Scrutiny of the reports of External Examiners for all teaching programmes.
- Encouraging student engagement at both the local level, through involvement in Faculty and Departmental Committees, and at a central level by participation in the National Student Survey (NSS), the Postgraduate Teaching Experience Survey (PTES) and the Postgraduate Research Experience Survey (PRES).
- Holding reflective, centrally-coordinated, Learning and Teaching Reviews for all teaching institutions every six years to explore provision and suggest constructive courses of action.
- Mentoring, appraisal, and peer review of staff, and encouraging staff participation in personal development programmes.

Graduate employability and career destinations

The majority of students are in full-time or part-time employment in a STEM or medicine related discipline. This could for example be either academic or industrial research, or a science-related communications role. Students take this course for reasons of professional and career development, advancement, personal development, or to enhance their skills and knowledge. Some students are recent graduates looking to become professionals working in science communication or similar and related disciplines.