UNIVERSITY OF CAMBRIDGE

Institute of Continuing Education

Postgraduate Certificate in Research and Innovation Leadership (Apprenticeship and PG Cert)

2022-2023

Course code: CNRIL601 (Apprenticeship) and CNRIL602 (PG Cert)

COURSE GUIDE

University of Cambridge Institute of Continuing Education, Madingley Hall, Cambridge, CB23 8AQ
Tel 01223 746222 www.ice.cam.ac.uk

Introduction

Welcome to the **Postgraduate Certificate in Research and Innovation Leadership** and associated **Apprenticeship**. This University of Cambridge award is offered by the Institute of Continuing Education (ICE) and was designed in collaboration with the Researcher Development Team at the University's Postdoc Academy and Centre for Teaching and Learning. The Postgraduate Certificate is taught and awarded at FHEQ level 7 (i.e., Masters level) and is worth 60 credits. Certification is completed in one academic year, plus an additional 3-6 months for completion of the apprenticeship. For further information about academic credit, please see our website: http://www.ice.cam.ac.uk/studying-with-us/information-for-students.

This programme is targeted at postdoctoral researchers and fellows with the aspiration and potential to achieve leadership positions in academic, commercial, public and not-for-profit organisations or self-started businesses and social enterprises. It supports participants to develop their research identity and the capability to lead independent research projects. This is done via structured support that is both relevant to the research which participants are currently undertaking and also the ideas which they are developing for their next steps. As such, mindful of increasing complexity and competition in research and innovation, this training will support flexibility and agility in career progression within and between sectors. It will broaden participants' views on the impact which they can have on wider intellectual, societal and economic challenges, whilst ensuring that research integrity and good personnel management are core features. Moreover, the programme will highlight the importance of ethical leadership, investigating the positive behaviours that support a healthy culture such as good leadership, collegiality and placing professional development as an integral part of all researchers' roles.

By providing an opportunity for participants to explore and consolidate their individual leadership practice within a multidisciplinary group, the programme will further foster interdisciplinarity and collegiality, enabling participants to practically develop skills addressed in theoretical elements of the curriculum. Thus, participants will work individually and in groups to explore leadership in different contexts and apply learning appropriately within individual situations, roles and positions. In so doing, the programme's content will be contextualised and situational, so that it can be responsive to, and focused on, individuals' needs and aspirations. Participants will receive integrated networking opportunities with experienced professionals to help further relate their learning and development to their individual needs and contexts.

Apprenticeship track

The curriculum for the Postgraduate Certificate in Research and Innovation Leadership was developed to meet and exceed the skills, knowledge and behaviour assessment requirements of the Academic Professional (Research) Apprenticeship standard (as detailed by the Institute for Apprenticeships and Technical Education. As such, the programme reflects the expectations of UK employers for researchers in the higher education (HE) sector.

With strong support of the employer, it is possible to enrol in the programme on the Apprenticeship track. Apprenticeships in England are governed by the rules and standards of the Education and Skills Funding Agency (ESFA) and the Institute for Apprenticeships and Technical Education (IfATE). The employer (in most cases the applicant's line manager or PI) will need to commit to meeting the following conditions:

- Granting the participant 20% of their normal working hours for off-the-job training

- Signing the Apprenticeship Contracts and Agreements
- Providing the participant with an employment mentor
- Participating (via the employment mentor) with tripartite reviews of the apprentice's progress, at least once a term (or as required by the academic team).
- Maintaining regular communication with the Academic Team and the Apprenticeships Team at the Institute for Continuing Education.
- Familiarizing themselves with relevant government legislation that underpins the Prevent Duty and Safeguarding responsibilities.

Participants who enrol on the Apprenticeship track, will be required to keep a record of their progress on APTEM: an online management system that records all the evidence that they are achieving their learning goals. They will need to regularly submit documents to document their progress. Keeping APTEM up to date is a condition for completing the apprenticeship.

The tuition fees for participants on the apprenticeship track can be paid via the employer's contribution to the apprenticeship levy.

Participants on the apprenticeship route will undergo an End Point Assessment as specified in the Level 7 Academic Professional Apprenticeship Standard, consisting of:

- An Academic Professional Practice Assessment
- A Professional Conversation
- A Written Submission

The End Point Assessment must be completed within 3-6 months of the completion of the Postgraduate Certificate course.

Apprentice students will need to demonstrate their learning against the Knowledge, Skills, Values and Behaviours (KSVBs) as defined in the Academic Professional Apprenticeship Standard for the specialist role in Research. Course content has been designed to support learning across all KSVBs A table of these KSVBs can be found on page 41 of the Course Guide. They are also listed in each Module by topic.

Structure of the PgCert

The course is made up of four modules:

- Module 1: Building a research vision and identifying core values
- Module 2: Using entrepreneurial skills as a research leader
- Module 3: Managing research projects and leading successful teams
- Module 4: Leading engagement and impact in academia and beyond

Course content will be delivered and facilitated by subject experts in a blended manner – i.e., a mix of face-to-face, online delivery and self-directed learning. Online content will be delivered through a dedicated Virtual Learning Environment (VLE) or through video-based remote meeting software platforms. Participants are expected to attend all the sessions: in person and online. Please see the Student Handbook for guidance on exceptions to this policy.

Course Aims

Upon completion of the programme of study, participants will have met the following learning outcomes:

<u>Knowledge and understanding</u>

- demonstrate the principles of reflective practice and the methods for applying reflective practice to their own professional development;
- demonstrate understanding of regulatory, administrative, financial, planning procedures, risk management, quality assurance and quality enhancement, and how they are related to their role in research;
- evidence a comprehensive understanding of how research is conducted, within their own and related disciplines and in inter-disciplinary or trans-disciplinary contexts;
- critically evaluate current research and advanced scholarship in their discipline;
- systematically and creatively deal with complex issues relating to their research;
- display an awareness of the theories of leadership, team development and the relevance to their own career progression;
- engage in and critically evaluate innovative approaches to undertaking their work to create interest, understanding and enthusiasm among their students, funders or stakeholders;
- demonstrate how to effectively engage with relevant professional bodies and other external organisations, stakeholders and community partners to support and enhance their work;
- develop and evaluate methods for determining the effectiveness of academic activities such as the impact of research.

<u>Skills and other attributes</u>

- develop research questions and hypotheses prior to undertaking research in their subject discipline;
- demonstrate an understanding of the wider context (policy, economic, societal, technological, legal, cultural and environmental) in which higher education operates, recognising the implications for professional practice;
- exercise initiative and personal responsibility, especially in areas of academic scholarship and critical thinking;
- demonstrate application of ethical, sustainable and inclusive practices and equality of opportunity to a professional standard;
- implement approaches to academic practice that are informed by equality, diversity and inclusion;
- work collaboratively with others, such as students, peers, policy makers and private and public organisations;
- evidence continuing professional development (CPD), application of inclusive leadership practice, and effective management of people or teams;
- communicate and disseminate their research clearly to specialist and non-specialist audiences using appropriate formats;
- act autonomously in planning and implementing opportunities to network and to communicate effectively;
- demonstrate application of ethical, sustainable and inclusive practices and equality of opportunity to a professional standard.

<u>British values</u>

A key aspect of the Institute's Prevent Duty is the promotion of British Values. These are the expected standards that shape society and are enshrined in law through legislation such as the Equality Act 2010. The British Values are:

- Democracy
- The rule of law
- Individual liberty
- Mutual respect and tolerance for those with different faiths and beliefs, and no faith or belief.

Apprentices will explore British Values through their theoretical learning and workplace learning. They will be expected to demonstrate connections between British Values and the achievement of the knowledge, skills and behaviours relevant to their own apprenticeship. The

sessions particularly relevant for the exploration of British Values are marked with a

Teaching and assessment

Teaching methods

The course is taught by subject experts in a blended manner, through a mixture of face-to-face and online delivery along with self-directed learning. A variety of teaching methods will be used, including interactive lectures, webinars, practical demonstrations and workshops, problem based learning and small group working. Teaching sessions integrate academic theory, practical application, discussion and critical appraisal. Online resources, provided through a Virtual Learning Environment, support the course teaching and facilitate the exploration of appropriate resources and the provision of formative and summative assessment.

Assessment

Each unit of study will contain summative assessment. Over the duration of the course this will amount to 9,000 - 15,000 words (or equivalent). Please see individual module descriptions (below) for details on the assignments.

Your assignments will be assessed by your ability to demonstrate the successful achievement of the learning outcomes. Your work will receive a percentage mark. The marking scale can be found in the Student Handbook 2022-23: Postgraduate Courses.

The final grade will be calculated as a weighted average of the grades for the individual modules. You need to pass each module in order to obtain your degree.

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Module 1	20 credits	33% of final grade
Module 2	10 credits	17% of final grade
Module 3	20 credits	33% of final grade
Module 4	10 credits	17% of final grade

Students receive continual formative assessment throughout the course using a variety of strategies and techniques including regular feedback and reflection.

Teaching staff

Course Lead:

Anna Cieslik (University of Cambridge School of Arts and Humanities and School of the Humanities and Social Sciences) is a School Research Facilitator. She is involved in analyzing funding trends and in horizon scanning for funding opportunities. She provides advice and feedback on grant applications and facilitates large collaborative bids. Anna enjoys teaching in a variety of settings, running workshops and training sessions and helping researchers develop their projects. Prior to coming to Cambridge, she was a postdoc at the Max Planck Institute and an Assistant Professor at New Jersey City University, where she gained experience in curriculum development and program management. In 2020 Anna became a Fellow of the Higher Education Academy.

Course Tutors:

Nicole Horst (University of Cambridge Postdoc Academy / Cambridge Centre for Teaching and Learning) is a Researcher Development Associate for postdocs. Nicole has a particular interest in designing and delivering leadership skills training for postdocs, aiming to equip postdocs with knowledge and tools that facilitate both their postdoctoral journey at Cambridge and their transition to the next career stage. She combines a decade of personal experience as a postdoc in the life sciences with knowledge gained while managing the Postdoc Academy's Leadership Fellowship Programme.

Katia Smith-Litiere (University of Cambridge Postdoc Academy) Katia works with stakeholders from national and international entrepreneurial ecosystems to develop educational programmes for postdocs. These programmes develop the entrepreneurial mindset and capabilities of the researchers to pursue academic and non-academic career paths, including starting a venture. Katia is responsible for the postdocs 2 innovators (p2i) network and a co-developer of the p2i online course: empowering researchers to innovate. Katia has over 15 years' experience in life sciences and healthcare sector, initially as academic researcher and subsequently as a technology and Innovation consultant. Katia co-founded the Cambridge Science Centre and is a director of Makespace, a community workshop and biolabs in Cambridge.

Lucinda Spokes: (University of Cambridge Public Engagement Office) studied the impact of human activity on our ocean for her PhD, conducting fieldwork across the world, on land and at sea. During this time, she developed a real enthusiasm for sharing research more widely. She moved into science outreach as part of an EU funded education project, producing the first online climate encyclopedia for the public, and then to the education charity STEM Team East. As part of this role, she developed activities for the University of Cambridge Science Festival. This led to a position as Cambridge Science Festival Manager. After eight fabulous festivals, Lucinda now heads up the Public Engagement Team. She oversees the Festival and helps support researchers and the public to engage collaboratively, effectively and enjoyably with each other, sharing information, ideas and inspiration

Administrative staff

Head of Academic Centre Administration: Jonathan Lippman, Institute of Continuing Education, University of Cambridge, Madingley Hall, Madingley, Cambridge, CB23 8AQ, Telephone 01223 746255   Email: jonathan.lippman@ice.cam.ac.uk

Apprenticeships team

Apprenticeships Administration Manager: Susan Burnett, Institute of Continuing Education, University of Cambridge, Madingley Hall, Madingley, Cambridge, CB23 8AQ,

Email: apprenticeships@ice.cam.ac.uk

Safeguarding

The University of Cambridge and the Institute of Continuing Education (ICE) are committed to ensuring the safety and wellbeing of all course participants. If you are struggling to manage your mental health, there are a number of sources of support and resources available to you dependent on your need.

If you need to speak to someone, we understand that it can sometimes be easier to approach someone whom you know and feel comfortable talking to. The members of staff on the Course Team will be able to listen and refer you to relevant support and resources.

You can also contact the Institute's Designated Safeguarding Lead, Dr Holly Tilbrook, (studentwelfare@ice.cam.ac.uk).

To find out more about the safeguarding policy at ICE, please read the safeguarding statement available on this website: https://www.ice.cam.ac.uk/apprenticeships .

Venue

In-person: Face-to-face sessions will be delivered at the Postdoc Centre in Eddington; The Postdoc Centre at Eddington was purpose-built in 2017 as the first of its kind in the UK. Additional rooms are available as needed in the Postdoc Centres in the City Centre and Biomedical Campus. These spaces can be arranged to accommodate lecture style teaching or configured to encourage small group learning and peer interaction. All rooms feature essential audiovisual capabilities and facilitators will have access to flip charts or white boards. Wi-Fi is available on-site. All Postdoc Centres are accessible via the Universal Bus Service. Parking is available for the Eddington Postdoc Centre at the Madingley Park and Ride. Directions to each site can be found through the website:

https://www.postdocacademy.cam.ac.uk/postdoc-centres.

Online: In-person teaching will be supported and complemented through a Virtual Learning Environment and video-based teaching platforms. This will support access at the convenience of the participants and help facilitate their self-directed learning.

Contact details of ICE

Institute of Continuing Education
University of Cambridge
Madingley Hall
Madingley
Cambridge
CB23 8AQ
T: 01223 746222

www.ice.cam.ac.uk
researchleadership@ice.cam.ac.uk

Please also refer to the 'Information for students' section on ICE's website www.ice.cam.ac.uk/studying-with-us/information-for-students and the 2022/23 Student Handbook for award-bearing courses for further information and guidance relating to all aspects of the course including study skills, assignments, assessment and moderation. The Course Information and Help and Guidance section of the ICE VLE will also contain valuable information specific to your course.

Module 1

Building a research vision and identifying core values (20 credits)

Tutors:	Anna Cieslik, Course Director Nicole Horst, Module 1 Lead

* Please note that the teaching venue is provisional and may be subject to change in accordance with government / University guidelines.

Aims

In this module, you will:

- analyse the political economy of higher education in the 21st century, with a primary focus on the UK;
- identify your own place in this framework by examining key policies and initiatives that are impacting universities, affecting what research is carried out, how, and by whom;
- discuss and critique the presented issues in the context of shifting ethical, social, and political expectations;
- explore the values and knowledge – personal, collective, institutional – at play in this complex ecosystem;
- be introduced to planning tools to help you strategically plan for the research you would like to pursue, how to secure funding and approval, and the kind of research networks and teams that will be needed to carry it out.

Content and presentation of the module

This module will introduce you to some of the key recurring concepts, themes, and learning approaches used throughout this course. In particular, we will begin to explore "leadership" and "innovation" in the context of research, and you will learn how to use reflective practice to consolidate your learning as you progress through the course materials.

Through a series of topics, you will develop a broader and deeper understanding of the factors that may influence the pursuit of research and have the opportunity to discuss these with the peers in your cohort, course tutors, and a variety of guest professionals. Knowledge of these factors will enable you to consider how to position your research to meet the expectations and needs of the current research environment.

You will be challenged to actively explore your personal and professional strengths and values and harness your creativity using well-established methods with the aim of applying these to your own research vision.

You will be introduced to practical approaches for strategically pursuing your research vision, taking into consideration how to also incorporate flexibility when faced with uncertainty or the unexpected.

Finally, you will start to think widely about the potential stakeholders of research and how to articulate your research vision to a range of individuals and organisations in order to ensure impact and solicit support.

Live sessions will be delivered either in person or virtually via combination of formats, including presentations, workshops, and discussion panels with guest professionals. You should come prepared to ask questions and share your ideas with fellow students, course tutors, and speakers.

Module 1 – Topics timetable						
Pre-module preparation: Establishing a VLE personal profile, completion of pre-module background reading and activities.						
Week	**Topic**	**Teaching date**	**Time(s)**	**Format**	**Topic content**	**Learning Outcomes and KSVBs**
1	**1**	06/10/2022	09:00-16:00	in person	Reflective practice and commitment to lifelong learning as a researcher	LO1.1, LO1.6, K9, S6, VB2, VB3, VB4, KR3 **BV**
2				self-paced		
3	**2**	19/10/2022	09:00-12:00	online	The shifting research landscape	LO1.2, LO1.4, K2, K3, K7, VB1, VB3, VB5, KR1, KR4, KR5, SR1
3	**3**	19/10/2022	13:00-16:00	online	Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines	LO1.2, LO1.3, LO1.4, LO1.5, K2, K4, S3, S4, S5, S9, S6, VB4, VB5, KR1, KR2, KR4, SR3 **BV**
4				self-paced		
5	**4**	01/11/2022	09:00-16:00	in person	Self-awareness and self-leadership	LO1.1, LO1.6, K4, K7, K9, S6, S7, S10, VB2, VB4, VB7, VB8
6				self-paced		
7	**5**	17/11/2022	09:00-12:00	in person	Creativity	LO1.7, K6, K8, S3, SR3
7	**6**	17/11/2022	13:00-16:00	in person	Developing your research vision	LO1.2, LO1.3, LO1.5, LO1.7, K2, K4, S3, S4, VB4, KR1, KR2, SR3 **BV**
8				self-paced		
9	**7**	29/11/2022	09:00-16:00	in person	Strategic and flexible approaches for pursuing your research vision	LO1.2, LO1.3, LO1.4, LO1.5, LO1.7, LO1.8, LO1.9, K2, K8, S7, VB4, KR3, KR4, SR1, SR2, SR3, SR5
10				self-paced		
11	**8**	13/12/2022	09:00-16:00	online	Sharing your vision with potential stakeholders	LO1.2, LO1.4, LO1.10, K2, K5, K6, K8, S8, S9, S10, VB5, VB6, KR4, KR5, SR1, SR3, SR4, SR5
12+					**Module assessment**	

Learning outcomes and KSVBs

By the end of this module, students should:

LO1.1. nurture an appreciation for the importance of reflective practice, develop an understanding of what lifelong learning looks like in research and be able to use both to optimise their potential for career development and advancement;

LO1.2. develop an understanding of the shifting research landscape: policies, funding streams and institutions influencing universities and the research environment as a whole;

LO1.3. have a deeper understanding of the nature and purpose of humanistic and scientific enquiry and how these relate to good research across academic disciplines;

LO1.4. gain insight into research in a transdisciplinary and interdisciplinary context;

LO1.5. feel more confident developing their own discipline-relevant research questions and hypotheses with reference to current issues and future horizons;

LO1.6. improve their self-awareness and be able to employ proven self-leadership strategies to more effectively achieve their goals;

LO1.7. be able to harness their creativity to develop and assess their research vision;

LO1.8. have been introduced to well-established strategic planning tools for taking their research vision to reality;

LO1.9. understand the importance of flexibility in research planning to be able to respond to the unexpected;

LO1.10. gain insight into how to engage with funders and other stakeholders to develop and communicate their research vision.

Pre- and post-session activities and formative assessments

Formative assessment will be used throughout the module to evaluate learning as it occurs in order to gauge comprehension, academic progress, and learning needs of course participants. This form of assessment does not influence your final grade for the course – that is done through summative assessment (see below). Students will receive direct written or verbal formative feedback from peers, tutors, or guest professionals on certain activities, including written submissions and presentations. Where individualized written or verbal feedback is not provided, uploaded content will be noted as having been completed and evidence for understanding of the material measured via engagement with VLE forums, in-session discussions, etc.

Each session will require pre-reading or completion of formative assignments, the purpose of which is to prepare you to engage with the material presented during the relevant live teaching session and to promote reflection and discussion. Readings may include articles, book chapters, webpages, policy documents or other materials, and activities may be assigned to individuals or small groups and may require submission or presentation. Detailed instructions for pre-session requirements can be found for each topic via the VLE (in the "Pre-session materials and activities" section). Post-session readings and assignments are designed to help you consolidate or deepen your learning of the session material. They are also formative (i.e., not graded, feedback-based). Instructions for mandatory post-session activities are in the "Post-session formative assignment" section for the relevant topic.

Summative assessment

The summative assessment for this module has two parts. Part 1 is a recorded presentation and Part 2 involves peer feedback on other presentations. You may wish to draw upon content and feedback from formative assignments when preparing for summative assessment. This will help to demonstrate progress across the module.

Part 1 (70% of mark)

Create a 15-minute (+/- 1 minute) PowerPoint presentation of your research vision that is suitable for sharing with researchers from a range of disciplines – in other words, your fellow participants and the course tutors. You may wish to refer to your research proposal canvas to help you prepare your slides.

Your presentation should cover the following in order to demonstrate that the learning objectives for this module have been met:

- Describe your research vision (as defined in Topic 6) and/or the research questions you are most interested in pursuing. Consider using the "5 Whys" approach or the OKR goal setting methods.
- Select a couple of key examples and reflect on the process of identifying gaps in your knowledge and skills, using the guidance for good reflective practice in the Topic 1 slides and the University of Edinburgh Reflection Toolkit.
- What personal values contributed toward your interest in this research vision? Please use the Barrett Model of Personal Values Assessment .
- Which external (e.g., societal) values, policies, or organisations influenced your vision or intended approach? Establish your position vis-à-vis the BEIS R&D People and Culture Strategy (2021), the UK Research and Development Roadmap (2020) and/or the Wellcome Trust Research Culture Report (2020). Name at least one other example from your discipline.
- How could you draw on expertise from other subject disciplines or sectors to support your vision? Critically reflect on the value of interdisciplinarity in research and cite five academic sources on this topic.
- How will you ensure that your plans can be flexible in the face of unanticipated obstacles or opportunities? Consider the concepts of creativity (Dehaan 2011, Lehmann and Gaskins 2011), serendipity (Darbellay et al 2014) and the ethics of care (Corbera et al 2020).
- Identify funders who would be interested in this type of research. Consider types of funders that were discussed in topic 2 and 8, but also list at least one funder that you would not have considered prior to participating in this course.

Aim for about 2/3 of your presentation to focus on the research and 1/3 to reflect on your leadership vision and goals. These can be distinct parts of the presentation or interwoven together. Explain the concept of leadership using readings assigned for the course or from teaching session discussions and explain its relevance for your personal and professional development.

Record your presentation as a video file. Please create your recording in such a way that we can see both the presenter and the presentation, e.g., using Zoom, Teams, Panopto, etc. Detailed instructions about file size and format and how to submit your file in the VLE will be provided toward the end of the module.

Closing date for the submission of Part 1 is 12:00 (noon) GMT, Wednesday 11th January 2023.

Part 2 (30% of mark)

In the second part of this assignment, each student will be assigned two presentations to watch and review. For each recording, students should write a 500 (+/-10%) word assessment using the principles of effective feedback covered in Topic 4. Please use the CEDAR method to deliver your feedback (Scott Bradbury 2007). While reviewing recordings, consider how well you felt you understood the research being presented, particularly if the subject discipline is different from your own. How well did the presenter meet the remit described for Part 1? What

worked well? What could be improved? Did you learn anything from the way that the presenter delivered their research vision that you would adopt in future presentations?

You will submit your feedback via Turnitin in the ICE VLE. Detailed instructions will be provided later in the module.

Closing date for the submission of Part 2 is 12:00 (noon) GMT, Friday 20th January 2023.

Reading and resource list

The lists below provide the primary readings and resources that accompany each topic in this module. See the relevant topic in the VLE for details on how these readings and resources will be incorporated into the curriculum. All materials should be available on open access websites or through University Library subscription. Please contact researchleadership@ice.cam.ac.uk if you have any difficulties accessing any of the materials here or via the VLE.

Reflective practice and commitment to lifelong learning as a researcher

The University of Cambridge, *Reflective Practice Toolkit*, available at https://libguides.cam.ac.uk/reflectivepracticetoolkit.

The University of Edinburgh, *Reflection Toolkit*, available at https://www.ed.ac.uk/reflection.

UNESCO Institute for Lifelong Learning, *Embracing a culture of lifelong learning* (2020), available online at https://uil.unesco.org/lifelong-learning/embracing-culture-lifelong-learning.

UNESCO Institute for Lifelong Learning, *Transdisciplinary perspectives on the futures of lifelong learning* (2020), available online at https://uil.unesco.org/lifelong-learning/collection-papers-transdisciplinary-perspectives-futures-lifelong-learning.

The shifting research landscape

Department for Business, Energy & Industrial Strategy, *R&D People and Culture Strategy* (2021), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004685/r_d-people-culture-strategy.pdf.

Funders joint statement: *Exploring a shared approach toward a narrative CV* (2021), available at https://www.ukri.org/wp-content/uploads/2021/07/UKRI-230721-4995CommsResumeJointFundersStatement-Final.pdf.

GOV.UK, *Science Minister on 'The research landscape'* (2020), available at https://www.gov.uk/government/speeches/science-minister-on-the-research-landscape.

HM Government, *UK Research and Development Roadmap* (2020), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/896799/UK_Research_and_Development_Roadmap.pdf.

President of Universities UK, *A mindset for our future* (2021), available at https://www.universitiesuk.ac.uk/sites/default/files/uploads/Media/uuk-president-annual-conference-speech-2021.pdf.

The Royal Society, *Résumé for Researchers* (2019), available at https://royalsociety.org/topics-policy/projects/research-culture/tools-for-support/resume-for-researchers/.

The Royal Society, *What is research culture?* (2018), available at
https://www.youtube.com/watch?v=mZ3bdTmjPKg.

The Wellcome Trust report on *What researchers think about the culture they work in* (2020), available at https://cms.wellcome.org/sites/default/files/what-researchers-think-about-the-culture-they-work-in.pdf.

Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines

Bolden R et al., *Academic leadership: Changing conceptions, identities and experiences in UK Higher Education* (2012), full report available at https://ore.exeter.ac.uk/repository/bitstream/handle/10871/15098/academic_leadership_v1_19312.pdf?sequence=2, summary report available at https://s3.eu-west-2.amazonaws.com/assets.creode.advancehe-document-manager/documents/lfhe/asset_images_docs/research_resources/research/series_3/lfhe_rd_3_pub_4_1_summary.pdf_1572865885.pdf.

Bouchrika I, *Top 10 qualities of good academic research*, (2014), available at https://research.com/research/top-10-qualities-of-good-academic-research.

Bridle H et al., "Preparing for an interdisciplinary future: A perspective from early-career researchers", (2013), *Futures 53*.

Douglas, H. "Science Wars and Policy Wars", (2009) in *Science, Policy, and the Value-Free Ideal*, University of Pittsburgh Press.

Drees WB, "The value of the humanities", (2021) in *What are the humanities for?*, Cambridge: Cambridge University Press.

Eisner W, "On the differences between scientific and artistic approaches to qualitative research", (2003), *Visual Arts Research 29*(57).

Hejazi, A, *Is interdisciplinary the future of research?*, (2019), available at https://www.wiley.com/network/featured-content/is-interdisciplinary-the-future-of-research.

Self-awareness and self-leadership

Browning M, "Self-leadership: Why it matters", (2018), *International Journal of Business and Social Science 9*(2).

Houghton JD & Neck CP, "The revised self-leadership questionnaire: Testing a hierarchical factor structure for self-leadership", (2002), *Journal of Managerial Psychology 17*(8).

Manz CC & Sims, "SuperLeadership: Beyond the myth of heroic leadership", (1991), *Organizational Dynamics*

Neck CP & Houghton JD, "Two decades of self-leadership theory and research: Past developments, present trends, and future possibilities", (2006), *Journal of Managerial Psychology 21*(4).

Stewart GL, Courtright SH, Manz CC, "Self-leadership: A multilevel review", (2010), *Journal of Management 37*(1).

Creativity

Dehaan, Robert L. (2011). Teaching creative scientific thinking. *Science 334*: 6062, 1499-1500.

Lehmann, J., Gaskins, B. (2019). Learning scientific creativity from the arts. *Palgrave Commun 5*, 96.

Mumford , Michael et al. (2010). Cross-Field Differences in Creative Problem-Solving Skills: A Comparison of Health, Biological, and Social Sciences, *Creativity Research Journal, 22*:1, 14-26.

Neroni, M. A., & Crilly, N. (2020). How to Guard Against Fixation? Demonstrating Individual Vulnerability is More Effective Than Warning of General Risk. *The Journal of Creative Behavior, 55* (2), 447-463.

Scheffer, M., M. Baas, and T. K. Bjordam. (2017). Teaching originality? Common habits behind creative production in science and arts. *Ecology and Society 22*(2):29.

Schwartz, Martin A. (2008). "The Importance of Stupidity in Scientific Research." *Journal of Cell Science 121*(11): 1771–1771.

Ulibarri, Nicola et al. (2014). "Research as Design: Developing Creative Confidence in Doctoral Students Through Design Thinking." *International Journal of Doctoral Studies 9*: 249–70.

Developing your research vision

Alon U, "How to Choose a Good Scientific Question", (2009), *Molecular Cell. 35*(6), 726-8.

Austin J, *Writing a research plan*, (2002), available at https://www.science.org/content/article/writing-research-plan.

Imperial College London Postdoc and Fellows Development Centre, *What's your research vision?*, available at https://www.imperial.ac.uk/media/imperial-college/administration-and-support-services/staff-development/public/postdocs/tipsheets/Research-Vision-v2019.pdf.

Rybarczyk BJ & Jeffers M. *How the past year has changed the academic job market (opinion)*, (2021), available at https://www.insidehighered.com/advice/2021/09/13/how-past-year-has-changed-academic-job-market-opinion.

University of Cambridge Research Strategy Office, *Pathways to impact tool*, available at https://www.research-strategy.admin.cam.ac.uk/pathwaytoimpact/index.html.

Strategic and flexible approaches for pursuing your research vision

Corbera et al., "Academia in the time of COVID-19: Towards an ethics of care", (2020), *Planning Theory & Practice 21*(2).

Darbellay F et al., "Interdisciplinary research boosted by serendipity", (2014), *Creativity Research Journal 26*(1).

Evis LH. "A critical appraisal of interdisciplinary research and education in British Higher Education Institutions: A path forward?", (2021), *Arts and Humanities in Higher Education 0*(0).

University of Cambridge, *Journeys of discovery: Rapid genome sequencing*, (2021), available at https://www.youtube.com/watch?v=m7uN-N0dDcQ&t=1s.

University of Chicago, *Science and serendipity: Happenstance and other factors underlying accidental discoveries* short video, (2014), available at https://news.uchicago.edu/videos/science-and-serendipity-happenstance-and-other-factors-underlying-accidental-discoveries-2.

Sharing your vision with potential stakeholders

Bolden R, Gosling J, O'Brien A. "Citizens of the academic community? A societal perspective on leadership in UK higher education", (2014), *Studies in Higher Education 39*(5).

Facer K & Enright B, *Creating living knowledge* report, (2016), available at https://connected-communities.org/wp-content/uploads/2016/04/Creating-Living-Knowledge.Final_.pdf.

NIHR, *Guidance on co-producing a research project*, (2021), available at https://www.learningforinvolvement.org.uk/wp-content/uploads/2021/04/NIHR-Guidance-on-co-producing-a-research-project-April-2021.pdf.

Royal Society of Chemistry, *How to publish your research*, (2018), available at https://www.rsc.org/globalassets/05-journals-books-databases/journal-authors-reviewers/prepare-your-article/how-to-publish-guide.pdf.

University of Cambridge Research Operations Office, *Major Funders*, https://www.research-operations.admin.cam.ac.uk/finding-funding/major-funders.

Wellcome, *How to write a Wellcome grant application*, available at https://wellcome.org/grant-funding/guidance/how-to-write-wellcome-grant-application.

Module 2

Using entrepreneurial mindset and skills as a research leader (10 credits)

Tutors:	Anna Cieslik, Course Director Katia Smith-Litière, Module 2 Lead

Aims

In this module, you will:

- gain an understanding of the importance of an entrepreneurial mindset, behaviours and skills for researchers to actively pursue rewarding and impactful careers in innovation, whether that is as innovators in Academia; in a company or as entrepreneurs - creating impact from innovation by starting a venture.

- take a closer look at mindsets and behaviours that successful innovators and entrepreneurs have in common, identify which behaviours you already have and which ones you can acquire/develop during your postdoctoral research position

- become familiar with the language, concepts, tools and processes used in the entrepreneurial world

- develop a deeper understanding of the process and the various aspects involved in creating impact through starting a venture

- gain understanding of benefits of collaborating with Industry, what industry values in researchers and how to engage with Industry and its challenges
- apply what you've learned related to starting a venture to your own research ideas, building your confidence and credibility to discuss your (business or research) ideas with various stakeholders

Content and presentation of the module

This module explores the shared behaviours of successful innovators in research and other contexts. It uses lessons from studying entrepreneurs to develop insight into the mindset, knowledge and skills researchers need to identify and act on opportunities, whether to develop research independence in an academic career, pursue a commercial opportunity, achieve a

successful policy intervention or other means of producing research that has an impact on the wider world.

You will identify which behaviours you already have and which ones you can acquire/develop alongside your postdoctoral research position.

You will learn all aspects related to how to go from an idea to a business opportunity, how to build a business case, how to validate and how to fund the opportunity.

You will apply what you've learned related to starting a venture and take an entrepreneurial framework and tool to further develop and strengthen aspects of your research vison

Throughout the module units, you will hear from a range of stakeholders that bring the topics to life and provide relatable inspiration to researchers

This module is mainly delivered as an online course on the ICE VLE platform, complemented with live sessions that will be delivered either in person or virtually via zoom.

The live sessions will consist of a combination of formats, including presentations, workshops, and discussion panels with guest professionals. The topics of the live sessions are scheduled according to the course units you will be learning on around the time.

You are encouraged to interact with your fellow course participants on the VLE through the discussion forums, which are available in each of the course units.

You should come prepared to ask questions and share your ideas with fellow participants, course tutors, and speakers at the face-to-face sessions.

Topics timetable

Week	Topic	Teaching date	Time(s)	Format	Topic content	Learning Outcomes and KSVBs
1	1	31/01/2023	09:00-13:00	in person	Introduction to Module 2; Online course orientation Postdocs are innovators in training	LO2.1, LO2.2, K6, S8, S10, VB2, VB5, VB6, VB7, VB8, SR2, SR3 BV
1	1	Week commencing 30/01/2023	self-paced		Unit 1: postdocs are innovators in training	LO2.1, LO2.2, K6, S8, S10, VB2, VB5, VB6, VB7, VB8, SR2, SR3
2	2	Week commencing 06/02/2023	self-paced		Unit 2: Behaviours of innovators and entrepreneurs	LO2.1, K5, K6, S8, S10, VB2, VB6, SR2, SR3, SR5
2	2	10/02/2023	09:00-13:00	in person	Unit 2: Behaviours of innovators and entrepreneurs	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5
	3				Unit 3: Become entrepreneurs	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, K8, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5
					Creativity session; choose idea / challenge	
3	3	Week commencing 13/02/2023	self-paced		Unit 3 Become entrepreneurs	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, K8, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5
4	3/3a	Week commencing 20/02/2023	self-paced		Unit 3: Become entrepreneurs Unit 3a: Become entrepreneurs: From opportunity to action	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, K8, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5
5	3a/3b	Week commencing 27/02/2023	self-paced		Unit 3a: Become entrepreneurs: From opportunity to action	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, K8, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5

Week	Topic	Teaching date	Time(s)	Format	Topic content	Learning Outcomes and KSVBs
					Unit 3b: Become entrepreneurs: Entrepreneurship in practice	
5	**3b**	02/03/2023	09:00-13:00	online	Unit 3b: Become entrepreneurs: Entrepreneurship in practice	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, K8, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5
6	**3b**	Week commencing 06/03/2023	self-paced		Unit 3b: Become entrepreneurs: Entrepreneurship in practice Unit 3c: Become entrepreneurs: Making it happen	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, K8, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5
7	**3c**	Week commencing 13/03/2023	self-paced		Unit 3c: Become entrepreneurs: Making it happen	LO2.3, LO2.4, LO2.5, LO2.6, LO2.7, K5, K6, K8, S8, S10, VB2, VB3, VB5, VB6, VB7, SR1, SR3, SR5 **BV**
8	**4**	Week commencing 20/03/2023	self-paced		Unit 4: Pursue a career beyond academia	LO2.1, LO2.3; LO2.7, K9, S7, S8, VB1, VB2, VB5, VB6, VB7, VB8
8	**5**				Unit 5: Continuing as academic innovators	LO2.2, LO2.3, LO2.4 LO2.5, LO2.6, K5, K6, K9, S3, S8, S10, VB2, VB3, VB5, VB6, VB7, KR5, SR1, SR3, SR5
8	**4/5**	23/03/2023	09:00-13:00	online	Apply the entrepreneurial mindset and skills/capabilities to research or industry career	
9	**5**	Week commencing 27/03/2023	self-paced		Unit 5: Continuing as academic innovators	LO2.2, LO2.3, LO2.4 LO2.5, LO2.6, K5, K6, K9, S3, S8, S10, VB2, VB3, VB5, VB6, VB7, KR5, SR1, SR3, SR5
9		31/03/2023	09:00-13:00	in person	**Pitch session**	

Learning outcomes and KSVBs

By the end of this module, students should:

LO1.11. have identified key characteristics of researchers valued by collaborators and employers outside academia;

LO1.12. understand how successful researchers and entrepreneurs share particular behaviours and how to develop these behaviours;

LO1.13. be able to create and present research and research proposals with relevance to various professional and social contexts;

LO1.14. gain familiarity with language, concepts, tools and processes used in the entrepreneurial and business world to build confidence to engage with stakeholders and turn exciting ideas into real ventures;

LO1.15. develop entrepreneurial approaches to establish collaborations in academia and beyond;

LO1.16. learn how to recognise and/or create and communicate new research opportunities;

LO1.17. gain insight into how to secure support and funding to pursue research and/or commercial opportunities.

Pre- and post-session activities and formative assessments

This module is based on a self-directed online course: Empowering researchers to innovate. Included in this course guide is the schedule of which week covers which unit as the self-paced learning and which activity(ies)/formative assessments to complete.

Each scheduled teaching session (f2f in person or online) will require pre-reading and/or completion of formative assignments, the purpose of which is to prepare you to engage with the material presented during the relevant live teaching session and to promote reflection and discussion. Readings and resources may include articles, blogs, book chapters, webpages, case studies, videos or other materials, and activities/exercises are assigned to individuals and may require submission or presentation.

Each unit has a quiz to support your learning, it is not an assessment, but helps you identify the knowledge you are gaining.

Formative assessments will be used throughout the module to evaluate learning as it occurs in order to gauge comprehension, academic progress, and learning needs of course participants. Each unit in this module (8 units) has one or two exercises where you can apply your learning to your own research/business idea. These exercises are part of the formative assessments and will support your final summative assessment for this module.

This form of assessment does not influence your final grade for the course – that is done through summative assessment (see below).

Course participants will receive direct written or verbal formative feedback from peers, tutors, or guest professionals on certain activities, including written submissions and presentations. Where individualized written or verbal feedback is not provided, uploaded content will be noted as having been completed and evidence for understanding of the material measured via engagement with VLE forums, in-session discussions, etc. All the formative assessments for the module 2 are on the VLE module 2 course. You can find them in the "Exercises to reinforce learning" section in each of the units.

The summative assessment for this module consists of two parts:

Part 1 is creating a pitch deck (PowerPoint slides) and delivering a 3-minute pitch of the business idea to the cohort of participants and a small panel of industry experts.
Part 2 is a discussion document with action plan on how you will apply your understanding of innovator characteristics and behaviours to your approach to explore/establish a collaboration.

Part 1: Pitch Deck (70% of mark)

You will be tasked with creating a pitch deck and a 3-minute pitch of the business idea that you will have been working on throughout the module. This is where you will apply what you had learnt throughout the module in a practical way.

You will deliver your pitch in person to fellow students and a small panel of business experts. The content to be delivered for the pitch will have been created through the various formative assignments that have been submitted throughout the module and should reflect the feedback received on the assignments. The slide deck and presentation should cover the key essential content about a business opportunity/venture to communicate to a range of stakeholders. The module course resources include a guide template for a pitch.

The pitches will be evaluated by a panel of experts as well as fellow participants using a set of objective and transparent criteria to rate the clarity of the various aspects of a business opportunity as well as the delivery of the pitch and the pitch slides. The course tutor will consider all evaluation feedback when assessing the pitch.

You must record and submit your 3-minute pitch before the face-to-face event at Eddington on 31st March 2022. During the event you will deliver your pitch in person. After each pitch, there will be 5 minutes for questions from the panel members.

Closing date for submission of the PowerPoint slides (pitch deck) for the pitches and a video recording of the pitch is 12:00 (noon) BST, Thursday 30th March 2023.

You will submit the slides and the video via Turnitin in the ICE VLE. Detailed instructions will be provided at the beginning of the module.

Part 2: Discussion document with action plan (30% of the mark)

A discussion document (1000 words) (+/- 10%) that shows your understanding of:

- the key behaviours and attitudes that successful academic researchers, employees and entrepreneurs share and how to develop these behaviours. Include what actions researchers/you can/will take to acquire and/or further develop such behaviours and what opportunities you will pursue to showcase these behaviours to your PI, colleagues, potential collaborators
- the key characteristics/attributes of academic researchers that are valued by collaborators and employers outside academia. Consider, for example the entrepreneurial mindset (Neuman 2017, Commarmond 2017), the growth mindset (Dweck 2007) and opportunity recognition (Hills et al 1997). Include what actions a researcher/you can/will take to explore/initiate a collaboration with another academic group or a company. Please refer to at least 3 sources (from the module readings or extra ones identified by you to support your answers.

Closing date for the submission of Part 2 is 12:00 (noon) BST, Friday 31st March 2023
You will submit the document via Turnitin in the ICE VLE. Detailed instructions will be provided at the beginning of the module.

Reading and resource list

The module topic content is largely delivered in the format of introductory videos on the topic, explanatory text, talking head videos to bring the topics alive and exercises to help you apply your learning. Additional reading and resources can be found in the "Further reading" sections of each topic unit in the online course on the ICE VLE. These resources accompany the topics covered in each of the units

All materials should be available on open access websites or through University Library subscription. Please contact researchleadership@ice.cam.ac.uk if you have any difficulties accessing any of the materials here or via the VLE.

Topic Unit 1: Postdocs are innovators in training

Turning entrepreneurial doesn't stunt academic research output.

https://sciencebusiness.net/news/75842/Turning-entrepreneurial-doesn%E2%80%99t-stunt-academic-research-output

The entrepreneurial university: Examining the underlying academic tensions.

https://www.researchgate.net/publication/241080604_The_entrepreneurial_university_Examining_the_underlying_academic_tensions

Effectuation: A logic of thinking, discovered through scientific research, used by expert entrepreneurs to build successful ventures.

https://www.effectuation.org/?page_id=4055&principle=affordable-loss

Entrepreneurial academics and academic entrepreneurs: A systematic literature review.

https://www.researchgate.net/publication/325164974_Entrepreneurial_academics_and_academic_entrepreneurs_A_systematic_literature_review

Similarities between an Entrepreneur and an Academic

https://pragmaticstartup.wordpress.com/2011/02/21/similarities-between-an-entrepreneur-and-an-academic/

You Don't Need To Work At A Startup To Be An Entrepreneur.

https://www.forbes.com/sites/lisaquast/2016/10/24/you-dont-need-to-work-at-a-start-up-to-be-an-entrepreneur/?sh=2b29ae5a614b

Topic Unit 2: Behaviours of innovators and entrepreneurs

Growth mindset.

https://www.themarginalian.org/2014/01/29/carol-dweck-mindset/

Learning from failure and coming back stronger.

https://www.investedinvestor.com/articles/2018/9/19/jelena-aleksic

Why Core Team is Crucial for Your Startup.

https://www.entrepreneur.com/article/270515

How to network effectively.

https://www.science.org/content/article/how-network-effectively

The Art Of Effective Networking – For Scientists.

https://www.biotechconnection-sg.org/the-art-of-effective-networking-for-scientists/

Topic Unit 3 Become entrepreneurs

Opportunity recognition: perceptions and behaviors of entrepreneurs. Hills, G., Lumpkin, G.T., Singh, R.P., 1997. Frontiers of Entrepreneurship Research. Babson College, Wellesley, MA, 203–218.

https://fusionmx.babson.edu/entrep/fer/papers97/hills/hill1.htm

Think like a customer – be the customer.

https://hbr.org/2018/09/to-get-employees-to-empathize-with-customers-make-them-think-like-customers

How does the Technology Readiness Level (TRL) framework apply to grant funding?

https://redknightconsultancy.co.uk/2021/07/21/grant-funding-and-the-trl-framework/?utm_source=rss&utm_medium=rss&utm_campaign=grant-funding-and-the-trl-framework

Competitive Analysis: How To Conduct A Comprehensive Competitive Analysis

https://www.mykpono.com/how-to-conduct-competitive-analysis/

Topic Unit 3a: Become entrepreneurs: From opportunity to action

Understanding market research.

https://www.entrepreneurship.org/articles/2007/03/understanding-market-research

The comprehensive business case for sustainability

https://hbr.org/2016/10/the-comprehensive-business-case-for-sustainability

Characteristics of a sustainable business model.

https://www.forumforthefuture.org/blog/characteristics-of-a-sustainable-business-model

The Ultimate Value chain guide to give your business competitive advantage and increased profitability.

https://www.sweetprocess.com/value-chain/#ch3

Achieve Product-Market Fit with the **Value Proposition Canvas (CVP)**

https://www.strategyzer.com/blog/achieve-product-market-fit-with-our-brand-new-value-proposition-designer-canvas

You can download the Value proposition Canvas and watch a video on how to use the canvas

https://www.strategyzer.com/canvas/value-proposition-canvas

A 2-minute overview of the **Business Model Canvas (BMC)**, a tool for visionaries, game changers, and challengers and how to use it

https://www.strategyzer.com/canvas/business-model-canvas

The triple layered business model canvas: A tool to design more sustainable business models – Nespresso example.

https://www.sciencedirect.com/science/article/abs/pii/S0959652616307442

In the course, you can use these tools to develop your idea into a business opportunity

The Top 12 Reasons Why Startups Fail

CBI Insights report https://www.cbinsights.com/research-12-reasons-why-startups-fail?

Topic Unit 3b: Become entrepreneurs: Entrepreneurship in practice

Building a Social Enterprise. The spectrum of legal structures available to social enterprises in the United Kingdom.

https://uploads-ssl.webflow.com/5a0ad2cbd65a2f0001be3903/5ba1f16dacf579565fdf356d_SimPrints-Building-a-Social-Enterprise.pdf

Minimum viable products

https://myva360.com/blog/examples-of-minimum-viable-products

Topic Unit 3c: Become entrepreneurs: Making it happen

What is intellectual property and types of intellectual property

https://www.wipo.int/about-ip/en/

Three stories every startup needs to tell

https://www.fastcompany.com/90328836/three-stories-every-startup-needs-to-tell

Topic Unit 4: Pursue a career beyond academia

From academia to industry: seven tips for scientists making the leap. Nature Careers
https://www.nature.com/articles/d41586-019-00692-y

The Innovative Employee: Traits, Knowledge and Company Culture. Innovation Management

https://innovationmanagement.se/2013/06/06/the-innovative-employee-traits-knowledge-and-company-culture/

http://blogs.nature.com/naturejobs/2015/12/18/careers-in-industry-how-to-transition-into-a-new-field/

Topic Unit 5: Continuing as academic innovators

Scientific independence – how to develop and demonstrate it?

https://smartsciencecareer.com/scientific-independence/

Syllabus for Module 3

Managing research projects and leading successful teams
(20 credits)

Tutors:	Anna Cieslik, Course Director TBC, Module 3 Lead

Aims

This module enables participants to examine the practical and interpersonal aspects of successfully initiating a research project and seeing it through to completion. Participants explore the ethical and legal requirements of funding, data management, recruitment, human resources, inclusive leadership and open research. Participants are introduced to leadership models from the recent academic literature, and theories of team dynamics and the factors which allow some teams to thrive when others fail.

Content and presentation of the module

By completing this module, you will have gained a greater understanding of the considerations necessary in creating a relevant research project plan and how to ensure its successful completion. This module is designed to cover all aspects of project planning and management, as well as investigating aspects of leading successful teams. To enable this, you will be first introduced to the 'nuts and bolts' of setting up a project through the experiences of others who have learned what works when planning how to make their vision a reality.

Through a series of topics, you will develop a broader and deeper understanding of all the component parts of managing research projects and leading successful teams. Knowledge of these topics will enable you to prepare an application whilst showcasing your knowledge and understanding to prospective funders, supporters, organisations and individuals.

In the first half of the module, you will look at all the elements to put together a potential funding application and you will gain feedback from possible funders, stakeholders and your peers. In the second half of the module, you will focus on the more relational elements of leadership and management to ensure the success of your project through working with individuals and teams, whether that is via networks, collaborations, supervision or direct line-management. You will prepare to work with others on a research proposal by running a mock kick-off meeting to start the project. You will share your ideas and gain feedback before completing the final report at the end of the module.

Module 3 – Topics timetable

Pre-module preparation: Getting started on this module - completion of pre-module background reading, homework and reflective log.

Week	Topic	Teaching date	Time(s)	Format	Topic content	Learning Outcomes and KSVBs
1	**1**	21/04/2023	09:00-12:00	online	The nuts and bolts of starting a project	LO3.1, LO3.2, K3, K7, SR2
2	**2**	26/04/2023	09:00-16:00	in person	Research ethics and integrity, open research and research impact	LO3.1, LO3.2, K3, K4, S10, VB1, VB3, VB8, SR2 **BV**
3	**3**	05/05/2023	09:00-12:00	online	Raising funds for your research	LO3.1, LO3.2, K3, K5, K6, K8, S10, VB5, VB6, KR5, SR5
3	**4**	05/05/2023	13:00-16:00	online	Tools for project management	LO3.1, K3, K7, S7, KR3, SR2
4	**1-4**	12/05/2023	09:00-16:00	in person	Proposal pitch to potential funders + formative assessment feedback	
5			self-paced			
6	**5**	25/05/2023	09:00-12:00	online	Leadership theories	LO3.3, S5, S7, S8, S11, VB2, VB7, VB8
6	**6**	25/05/2023	13:00-16:00	online	Cultural intelligence and inclusive leadership	LO3.2, LO3.3, LO3.4, K2, K8, S2, S11, VB1, VB3, VB8
7			self-paced		Half Term	
8	**7**	07/06/2023	09:00-12:00	in person	Building networks, collaborations and teams	LO3.4, LO3.5, K5, K6, K8, S8, S9, S10, VB1, VB2, VB6, VB7, VB8, SR5 **BV**
9	**8**	07/06/2023	13:00-16:00	in person	Managing people and performance	LO3.2, LO3.3, LO3.4, LO3.5, K8, S5, S7, S8, S11, VB1, VB3, VB7, VB8
10			self-paced			
11	**5-8**	21/06/2023	09:00-16:00	in person	Kick-off meetings + formative assessment feedback; Preparation for summative assessment	
12		Due 29/06/2023			**Module assessment**	

Learning outcomes

By the end of this module, students should:

LO3.1

> Develop an understanding of project planning and management, including insight into finance and grant management, funder requirements, operational essentials, costing, timelines, project tools, impact, research ethics and open access.

LO3.2

> Understand how to implement policies in the practice of research in a discipline-specific context, ensuring compliance and improving the quality of outputs.

LO3.3

> Gain knowledge of leadership theories and practice in different disciplines and contexts to help them become the type of leader they want and need to be.

LO3.4

> Develop an appreciation for the role of cultural intelligence in recruitment practices and team dynamics.

LO3.5

> Learn strategies that enable effective communication with colleagues, teams or collaborators.

Pre- and post-session activities and formative assessments

Each session will require pre-reading or completion of formative assignments, the purpose of which is to prepare you to engage with the material presented during the relevant live teaching session and to promote reflection and discussion. Readings may include articles, book chapters, webpages, policy documents or other materials, and activities may be assigned to individuals or small groups and may require submission or presentation.

Detailed instructions for pre-session requirements can be found for each topic via the VLE (in the "Pre-session materials and activities" section). Post-session readings and assignments are designed to help you consolidate or deepen your learning of the session material. They are also formative (i.e., not graded, feedback-based). Instructions for mandatory post-session activities are in the "Post-session formative assignment" section for the relevant topic.

Formative assessment will be used throughout the module to evaluate learning as it occurs in order to gauge comprehension, academic progress, and learning needs of course participants. This form of assessment does not influence your final grade for the course – that is done through summative assessment (see below). Students will receive direct written or verbal formative feedback from peers, tutors, or guest professionals on certain activities, including written submissions and presentations. During this module there will be two specific opportunities for formative assessment and feedback:

a) A presentation to potential funders and/or a relevant audience to be completed on Friday 12th May 2023.
b) A mock kick-off meeting including other course participants as team members and collaborators on Wednesday 21st June 2023.

Where individualized written or verbal feedback is not provided, uploaded content will be noted as having been completed and evidence for understanding of the material measured via engagement with VLE forums, in-session discussions, etc.

Summative assessment

During this module you will have had the opportunity to pitch a project proposal and gain feedback from potential funders, or a relevant audience. You will also have prepared for a mock kick-off meeting to start your project with a team or collaborators. You will gain formative assessment from the proposal and the kick-off meeting before submitting the summative assessment for this module.

The summative assessment will be a 4000-word report showcasing the research/project proposal you have pitched and how you propose to lead, manage and work effectively with those involved to reach a successful completion. The report should come in two sections assessed equally, so ensure that you give equal weight to both sections of the report. Your report should cover the following content in each section to demonstrate that the learning objectives for this module have been met.

Section 1: (50%)

Present all the necessary documentation prepared for the project kick-off meeting that will include all stakeholders. This documentation should include the following:

- Project Overview – a general and brief overview of the project
- Project Details – more specific details (including a project plan, project management tools, costing, timelines, deliverables, dissemination of milestones, implementation of relevant policies, and considerations of impact, research ethics and open access)
- Project Team Roles and Responsibilities (overview of the project management and coordination activities including yourself as the project leader)
- Stakeholder Communications Plan

Section 2: (50%)

Discuss how you would apply your understanding of leadership theory and practice in this context to ensure a successful outcome to this project. Include how you would demonstrate cultural intelligence in recruiting team members or setting up collaborations and networks, and how you would take team dynamics into account.

Closing date for submission is 12.00pm (noon) BST, on Thursday 29th June 2023

Reading and resource list

The lists below provide the primary readings and resources that accompany each topic in this module. See the relevant topic in the VLE for details on how these readings and resources will be incorporated into the curriculum. All materials should be available on open access websites or through University Library subscription.

Please contact researchleadership@ice.cam.ac.uk if you have any difficulties accessing any of the materials here or via the VLE.

Nuts and Bolts

The University of Cambridge Research Operations Office, 'Planning your Research'.
Available at: https://www.research-operations.admin.cam.ac.uk/planning-your-research-0

Research Ethics and Integrity

The Concordat to Support Research Integrity, Universities UK. Available at:
https://www.universitiesuk.ac.uk/topics/research-and-innovation/concordat-research-integrity

Nine Pitfalls of Research Misconduct. Available at: https://www.nature.com/articles/d41586-018-05145-6

Royal Society, Research Culture: embedding inclusive excellence. Available at:
https://royalsociety.org/topics-policy/publications/2018/research-culture-embedding-inclusive-excellence/

Open Research

cOAlition S for the Realisation of Full and Immediate Open Access. Available at:
https://www.coalition-s.org/wp-content/uploads/cOAlitionS_Preamble.pdf

Open Access Explained. Video available at:
https://www.youtube.com/watch?v=L5rVH1KGBCY&t=54s

CESSDA Data Management Expert guide, chapter 6 (particularly the sections on 'Towards archiving & publication' and 'Data publishing routes'). Available at: https://www.cessda.eu/Training/Training-Resources/Library/Data-Management-Expert-Guide/6.-Archive-Publish

Impact

Reed, M.S. (2018). The Research Impact Handbook (2nd Edition).

Funding

The University of Cambridge Research Operations Office, 'Finding Funding'. Available at:
https://www.research-operations.admin.cam.ac.uk/finding-funding

Crawley, G. & O'Sullivan, E. (2015) The Grant Writer's Handbook: How to Write a Research Proposal and Succeed. Imperial College Press.

The Grant Writer's Handbook companion website:
https://www.ifm.eng.cam.ac.uk/research/grant-writers-handbook/

Tools for Project Management

Vitae – Project Management for Researchers. Available at: https://www.vitae.ac.uk/doing-research/leadership-development-for-principal-investigators-pis/leading-a-research-project/managing-a-research-project/project-management-tools-for-researchers

Leadership Theories

University of Cambridge Institute for Sustainability Leadership (CISL). A report commissioned by the British Council. (2017, June) *Global Definitions of Leadership and Theories of Leadership Development: Literature Review.* Cambridge, UK: Cambridge Institute for Sustainability Leadership. https://www.cisl.cam.ac.uk/resources/sustainability-leadership/global-definitions-of-leadership

Vitae Research Leadership Styles https://www.vitae.ac.uk/doing-research/leadership-development-for-principal-investigators-pis/leading-a-research-project/effective-research-project-leadership-1/research-leadership-styles

Grint, K. (2010). Leadership A Very Short Introduction. Oxford: Oxford University Press.

Cultural Intelligence and Inclusive Leadership

University of Cambridge, Department of Zoology, Annual Equalities and Wellbeing Lecture 2021. Recording available at: https://www.zoo.cam.ac.uk/annual-ewb-lecture

Livermore, D. (2009). Leading with Cultural Intelligence: the real secret to success.

Nielson, T & Kepinski, L (2020). Inclusion Nudges for Leaders in all organisations and communities.

Building Networks, Collaborations and Teams

Alon, U. (2010). How to Build a Motivated Research Group. *Molecular Cell.* 37 (2), 151-2.

Bohndiek, S. (2015). Finding Balance in a new lab. Available at: http://www.bohndieklab.org/wp-content/uploads/2015/12/Bohndiek-2014-Finding-balance.pdf

How MIT builds cities using lego and augmented reality, Science of Teams. Video available at: https://www.youtube.com/watch?v=AIuqJWcSKxc

Managing People and Performance

Chartered Institute of Personnel and Development (CIPD): Introduction for line managers. Available at: https://www.cipd.co.uk/knowledge/fundamentals/people/line-manager/introduction-to-support-materials

Leading engagement and impact in academia and beyond (10 credits)

| Tutors: | Anna Cieslik, Course Director |
| | Lucinda Spokes, Module 4 lead |

Aims

In this module you will:

- explore the many ways in which we can share expertise, knowledge, and our collections with external audiences through public, patient, community and media engagement
- learn effective ways to engage, including methodologies and planning tools for developing research ideas in dialogue and through co-production to maximise the impact of your research

Content and presentation of the module

'*Public engagement describes the myriad of ways in which the activity and benefits of higher education and research can be shared with the public. Engagement is by definition a two-way process, involving interaction and listening, with the goal of generating mutual benefit*.'

National Coordinating Centre for Public Engagement.

This module will introduce you to some of the key ways we engage with external stakeholders. Using taught sessions, discussions and experiential learning, we will identify key communities and audiences for our research.

We will explore issues around power and privilege and how we embed equitable and inclusive ways of working into our engagement practice.

You will learn the skills needed to effectively communicate, question and listen to ensure people's voices are heard and their perspectives, ideas and concerns understood.

We will explore formats for engagement, identifying those appropriate for our research and our audiences. We will look at how we embed evaluation into our engagement work so that we can evidence the outcomes and impact of our engaged research practice.

Throughout the process, we will provide opportunities for you to question, plan, practice and reflect with experts and your peers.

Module 4 – Topics timetable						
Pre-module preparation: Getting started on this module - completion of pre-module background reading, homework and reflective log.						
Week	**Topic**	**Teaching date**	**Time(s)**	**Format**	**Topic content**	**Learning Outcomes and KSVBs**
1	**1**	05/07/2023	09:00-16:00	in person	The theory and practice of public engagement	LO4.1, LO4.2, LO4.3, LO4.4, K6, K8, S1, S2; S10, VB5, VB6, SR3, SR4, SR5
	2				Meet your external stakeholders	LO4.1, LO4.4, K5, K6, K8, S10, VB2, VB5, VB6, SR3, SR4, SR5
	3				Tools for engagement Communication and telling your research story Equity, diversity and inclusion	LO4.1, LO4.2, LO4.3, K1, K2, K6, K8, S1, S2, S9, S10, S11, VB1, VB3, VB5, VB6, KR4, SR4, SR5 **BV**

2	**4**
	4a
	4b
	4c
		12/07/2023	09:00-16:00		Engagement formats
					  a. outreach and events
					  b. coproduction and dialogue
					  c. engaging and promoting your research using traditional and social media
						LO4.1, LO4.2, LO4.3, LO4.4, K1, K2, K4, K5, K6, K7, K8, S1, S2, S8, S9, S10, VB5, VB6, VB7, KR4, SR3, SR4, SR5
						
						BV

3			Self-paced			
4	**5**	26/07/2023	09:00-16:00	in person	Designing research with impact	LO4.1, LO4.4, K2, K4, K6, S3, S10, VB5, KR1, KR4, SR3, SR5
4	**6**				Evaluating the impact of your research	LO4.1, LO4.2, LO4.3, LO4.4, K1, K4, S10, VB5, SR5
5-11			Self-paced		Summer holiday	
12		22/09/2023	09:00-16:00	in person	Showcase event	
					Module assessment	

By the end of this module, students should:

Outcomes

By the end of this module, students should:

LO4.1.   have a better understanding of how research users and other stakeholders – including industry, funders, the media and wider publics – set priorities and engage with research

LO4.2.   develop effective approaches for engaging effectively with external audiences

LO4.3.   use tools to plan and evaluate the success and impact of their research

LO4.4   understand how to build societal, economic, policy and translational impact into their research

Apprentice students will need to demonstrate their learning against the Knowledge, Skills, Values and Behaviours (KSVBs) as defined in the Academic Professional Apprenticeship Standard for the specialist role in Research. However, all course participants can benefit from measuring their progress against this standard. Course content has been designed to support learning across all KSVBs, and the document "KSVB map" in the X section of the VLE.

Formative assessment will be used throughout the module to evaluate learning as it occurs in order to gauge comprehension, academic progress, and learning needs of course participants. This form of assessment does not influence your final grade for the course, this will be achieved through summative assessment (see below).

Each session will require pre- and post-session reading or completion of assignments. The purpose of these is to prepare you to engage with the material presented during the relevant live teaching session and to promote reflection and discussion. Readings may include articles, book chapters, webpages, policy documents or other materials.

Feedback will be provided for a number of assignments. Where individualised written or verbal feedback is not provided, uploaded content will be noted as having been completed. Evidence for understanding will be measured via engagement with VLE forums and through in-session discussions with peers, tutors and guest professionals.

Instructions for pre- and post-session requirements for each topic can be found on the VLE.

The summative assessment for this module has three parts. Part one is a mapping of a public engagement activity; part two is based on creative engagement; part three is a presentation.

Part one: Activity mapping (40% of the mark)
Using the template logic model provided, or similar theory of change tool, map out a public engagement activity based on your own research. Include your aims, objectives, inputs, outputs, outcomes, and planned impact. Annotate this to include:

- stakeholder mapping results, including any assumptions you have made
- an analysis of the engagement format and why this was chosen

- activity plans, resources required – practical and financial
- risk identification and how risks will be minimised
- an evaluation plan based on your aims that includes evaluation at all stages of the project from planning, piloting to dissemination

(Word count: 500 +/- 10%)

Part two: Creative engagement (40% of the mark)
Create a short film / animation / social media takeover plan / activity plan and resources / podcast / blog focused on your research designed to engage with your chosen audience. Use your logic model plan to inform this piece and the format you choose to develop.

Films and animations should be no more than 2 minutes long, social media takeover - a series of ~10 related posts, activity plan of ~250 words and a linked resource, podcast no more than 15 minutes long, a series of three blog posts each no more than 500 words.

Part three: Presentation (20% of the mark)
Present the output of your creative engagement discussing how the logic model informed your work and format. Include a brief discussion on how public engagement and engaged research practice could be incorporated into your research career moving forward.

Closing date for Part one: Activity mapping, Part two: Creative engagement and Part three: Presentation slides is: 12.00pm (noon) BST, Friday 15th September 2023.

You will submit the report via Turnitin in the ICE VLE. Detailed instructions will be provided at the beginning of the module.

The presentation will be given in person on Friday 22 September 2023.

You may wish to draw upon content and feedback from formative assignments when preparing for summative assessment. This will help to demonstrate progress across the module.

Reading and resource list

The lists below provide the primary and additional readings and resources that accompany each topic in this module. See the relevant topic in the VLE for details on how these readings and resources will be incorporated into the curriculum. All materials should be available on open access websites or through University Library subscription.

Please contact researchleadership@ice.cam.ac.uk if you have any difficulties accessing any of the materials here or via the VLE.

The theory and practice of public engagement, tools for engagement, power and privilege

The National Coordinating Centre for Public Engagement
https://www.publicengagement.ac.uk/

UKRI: How we support public engagement
https://www.ukri.org/our-work/public-engagement/how-we-support-public-engagement/
Including the Concordat for engaging the public with research

And Public engagement useful resources
https://www.ukri.org/our-work/public-engagement/useful-resources/
And 'what's in it for me'
https://www.ukri.org/wp-content/uploads/2020/10/UKRI-16102020-Benefits-of-public-engagement.pdf

The Bodmer Report on the Public Understanding of Science
https://royalsociety.org/topics-policy/publications/1985/public-understanding-science/
https://royalsociety.org/~/media/royal_society_content/policy/publications/1985/10700.pdf

A research handbook for patient and public involvement researchers
Editors: Penny Bee, Helen Brooks, Patrick Callaghan, and Karina Lovell
https://www.manchesteropenhive.com/view/9781526136527/9781526136527.xml

The ASPIRES Project
Longitudinal research project studying young people's science* and career aspirations
Reports at: https://www.ucl.ac.uk/ioe/departments-and-centres/departments/education-practice-and-society/aspires-research/summary-reports-and-books

Also see Professor Emily Dawson at UCL. Emily's research focuses on how people encounter and engage with science* with an emphasis on equity and social justice
https://www.ucl.ac.uk/sts/people/dr-emily-dawson

Science in public: communication; culture, and credibility
Jane Gregory and Steve Miller (2000)
ISBN 0465024505, 9780465024506

Engagement formats

NCCPE: Choose a method to engage the public with your work
https://www.publicengagement.ac.uk/do-engagement/choose-method

NCCPE: How to develop effective and equitable partnerships.
https://www.publicengagement.ac.uk/do-engagement/partnership-working

UKRI: Co-production in research
https://www.ukri.org/about-us/policies-standards-and-data/good-research-resource-hub/research-co-production/

Disorientating, fun or meaningful? Disadvantaged families' experiences of a science* museum visit
Louise Archer, Emily Dawson, Amy Seakins & Billy Wong
Journal article; 2016; Cultural Studies of Science Education
https://doi.org/10.1007/s11422-015-9667-7

Why people attend science* festivals: Interests, motivations and self-reported benefits of public engagement with research
Eric Jensen, Nicola Buckley
Journal article; 2011, Public Understanding of Science
https://doi.org/10.1177/0963662512458624

More than a grand day out? Learning on school trips to science* festivals from the perspectives of teachers, pupils and organisers
Journal article: 2020, International Journal of Science Education
https://doi.org/10.1080/21548455.2020.1753126

NCCPE: Engaging the public through art-research collaborations: New resource informed by the sector
https://www.publicengagement.ac.uk/whats-new/news/engaging-public-through-art-research-collaborations-new-resource-informed-sector

THIS Institute: Arts-based engagement: a guide for community groups, artists and researchers
https://www.thisinstitute.cam.ac.uk/research-articles/arts-based-engagement/

Science Media Centre: resources for scientists* wanting to engage with the media
https://www.sciencemediacentre.org/publications/publications-for-scientists/

Designing work with impact and evaluating the impact of your engagement

UKRI: Delivering social, cultural, economic and knowledge impact
https://www.ukri.org/our-work/delivering-economic-impact/

Stern Review independent review of REF 2014
Research Excellence Framework: building on success and learning from experience
https://www.gov.uk/government/publications/research-excellence-framework-review

University of Cambridge Research Strategy Office: Pathways to impact planning tool
https://www.research-strategy.admin.cam.ac.uk/pathwaytoimpact/index.html.

Fast Track Impact: particularly the resources section
https://www.fasttrackimpact.com/resources

NCCPE: Evaluating public engagement to learn from your experiences and to assess the impact of your work.
https://www.publicengagement.ac.uk/do-engagement/evaluating-public-engagement

A common standard for the evaluation of Public Engagement with research
Reed, M.S., Duncan, S., Manners, P., Pound, D., Armitage, L., Frewer, L., Thorley, C. and Frost, B. (2018) Research for All, 2 (1): 143–162. DOI 10.18546/RFA.02.1.13.
https://www.scienceopen.com/document_file/07d93831-2d11-4825-8159-f73f74a04e90/ScienceOpen/s13.pdf

University of Cambridge Museums: Resources designed to help evaluate if your project has achieved its objectives and understand the impact it has on your audiences
https://www.museums.cam.ac.uk/blog/resources/

KSVB codes and module mapping

K = Knowledge; S = Skills; VB = Values/Behaviours; KR = Knowledge (Research); SR = Skills (Research)

Code	KSVBs	Course topic(s) (module.topic)
K1	A range of teaching, assessment and feedback methods used in higher education to support learning and achievement	4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4c: Engaging and promoting your research using traditional and social media 4.6: Evaluating the impact of your research
K2	How students learn and how research is conducted, within their own and related disciplines and in inter-disciplinary or transdisciplinary contexts.	1.2: The shifting research landscape 1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.6: Developing your research vision 1.7: Strategic and flexible approaches for pursuing your research vision 1.8: Sharing your vision with potential stakeholders 3.6: Cultural intelligence and inclusive leadership 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media 4.5: Designing research with impact
K3	The regulatory, administrative, financial and planning procedures, risk management, quality assurance and enhancement, and technological processes associated with effectiveness in their role in higher education.	1.2: The shifting research landscape 3.1: The nuts and bolts of starting a project 3.2: Research ethics and integrity, open research and research impact 3.3: Raising funds for your research 3.4: Tools for project management
K4	Methods for evaluating the effectiveness of academic activities, such as teaching or the quality and impact of research.	1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.4: Self-awareness and self-leadership 1.6: Developing your research vision 3.2: Research ethics and integrity, open research and research impact 4.4a: Engagement formats: outreach and events

Code	KSVBs	Course topic(s) (module.topic)
		4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media 4.5: Designing research with impact 4.6: Evaluating the impact of your research
K5	How to engage with relevant professional bodies and other external organisations to support their work.	1.8: Sharing your vision with potential stakeholders 2.2: Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.5: Continue as academic innovators 3.3: Raising funds for your research 3.7: Building networks, collaborations and teams 4.2: Meet our external stakeholders 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications
K6	Innovative approaches to undertaking their work to create interest, understanding and enthusiasm among their students, funders or stakeholders.	1.5: Creativity 1.8: Sharing your vision with potential stakeholders 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.5: Continue as academic innovators 3.3: Raising funds for your research 3.7: Building networks, collaborations and teams 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders 4.3: Tools for engagement

Code	KSVBs	Course topic(s) (module.topic)
		4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media 4.5: Designing research with impact
K7	The application of technological processes associated with effectiveness in their role within the HE sector.	1.2: The shifting research landscape 1.4: Self-awareness and self-leadership 3.1: The nuts and bolts of starting a project 3.4: Tools for project management 4.4c: Engaging and promoting your research using traditional and social media
K8	How to adapt delivery methods to support a range of needs.	1.5: Creativity 1.7: Strategic and flexible approaches for pursuing your research vision 1.8: Sharing your vision with potential stakeholders 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 3.3: Raising funds for your research 3.6: Cultural intelligence and inclusive leadership 3.7: Building networks, collaborations and teams 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders

Code	KSVBs	Course topic(s) (module.topic)
		4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media
K9	The principles of reflective practice and the methods for applying reflective practice to their own professional development.	1.1: Reflective practice and commitment to lifelong learning as a researcher 1.4: Self-awareness and self-leadership 2.4: Pursue a career beyond academia 2.5: Continue as academic innovators
S1	Deliver higher education teaching of high quality through lectures, tutorials, practicals or seminars.	4.1: The theory and practice of public engagement and public/subject involvement 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4c: Engaging and promoting your research using traditional and social media
S2	Use varying teaching styles depending on the learning environment and students' needs.	3.6: Cultural intelligence and inclusive leadership 4.1: The theory and practice of public engagement and public/subject involvement 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4c: Engaging and promoting your research using traditional and social media
S3	Developing research questions and hypotheses prior to undertaking research.	1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.5: Creativity 1.6: Developing your research vision 2.5: Continue as academic innovators 4.5: Designing research with impact
S4	Analysing, synthesising and using critical thinking in the conduct of research.	1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.6: Developing your research vision

Code	KSVBs	Course topic(s) (module.topic)
S5	Supervision and mentoring of students and peers to develop knowledge in their subject discipline.	1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 3.5: Leadership theories 3.8: Managing people and performance
S6	Manage their own continuing professional development (CPD) in subject disciplines and pedagogy, incorporating research, scholarship and professional practices.	1.1: Reflective practice and commitment to lifelong learning as a researcher 1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.4: Self-awareness and self-leadership
S7	Self-management through preparation and prioritisation, time management, responsiveness to change, and achieving a work-life balance.	1.4: Self-awareness and self-leadership 1.7: Strategic and flexible approaches for pursuing your research vision 2.4: Pursue a career beyond academia 3.4: Tools for project management 3.5: Leadership theories 3.8: Managing people and performance
S8	Communicate orally and in writing and collaborate effectively, to manage people, processes or teams.	1.8: Sharing your vision with potential stakeholders 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.4: Pursue a career beyond academia 2.5: Continue as academic innovators 3.5: Leadership theories 3.7: Building networks, collaborations and teams 3.8: Managing people and performance 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications

Code	KSVBs	Course topic(s) (module.topic)
S9	Use digital technologies effectively to develop and disseminate knowledge and understanding of subject disciplines.	1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.8: Sharing your vision with potential stakeholders 3.7: Building networks, collaborations and teams 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media
S10	Share ideas and evidence with students, peers, policy makers, private and public organisations, as well as collecting evidence of the impact of their work.	1.4: Self-awareness and self-leadership 1.8: Sharing your vision with potential stakeholders 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.5: Continue as academic innovators 3.2: Research ethics and integrity, open research and research impact 3.3: Raising funds for your research 3.7: Building networks, collaborations and teams 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media 4.5: Designing research with impact 4.6: Evaluating the impact of your research

Code	KSVBs	Course topic(s) (module.topic)
S11	Implementing approaches to academic practice informed by equality and diversity.	3.5: Leadership theories 3.6: Cultural intelligence and inclusive leadership 3.8: Managing people and performance 4.3: Tools for engagement
VB1	Consider ethical, sustainable and inclusive practices and equality of opportunity to a professional standard.	1.2: The shifting research landscape 2.4: Pursue a career beyond academia 3.2: Research ethics and integrity, open research and research impact 3.6: Cultural intelligence and inclusive leadership 3.7: Building networks, collaborations and teams 3.8: Managing people and performance 4.3: Tools for engagement
VB2	Be mindful of one's CPD in relation to career management, responsiveness to opportunities, networking, reputation and esteem.	1.1: Reflective practice and commitment to lifelong learning as a researcher 1.4: Self-awareness and self-leadership 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.4: Pursue a career beyond academia 2.5: Continue as academic innovators 3.5: Leadership theories 3.7: Building networks, collaborations and teams 4.2: Meet our external stakeholders
VB3	Commit to CPD in relation to relevant contemporary issues such as: student employability and graduate employment destinations; ethics and sustainability, academic integrity, legal compliance and intellectual property, respect and confidentiality, and health and safety.	1.1: Reflective practice and commitment to lifelong learning as a researcher 1.2: The shifting research landscape 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.5: Continue as academic innovators

Code	KSVBs	Course topic(s) (module.topic)
		3.2: Research ethics and integrity, open research and research impact 3.6: Cultural intelligence and inclusive leadership 3.8: Managing people and performance 4.3: Tools for engagement
VB4	Consider evidence-informed approaches and the outcomes from research, scholarship and CPD to inform their own professional practice.	1.1: Reflective practice and commitment to lifelong learning as a researcher 1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.4: Self-awareness and self-leadership 1.6: Developing your research vision 1.7: Strategic and flexible approaches to pursuing your research vision
VB5	Be mindful of the wider context (policy, economic, societal, technological, legal, cultural and environmental) in which higher education operates, recognising the implications for professional practice.	1.2: The shifting research landscape 1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.8: Sharing your vision with potential stakeholders 2.1: Postdocs are innovators in training 2.2: Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.4: Pursue a career beyond academia 2.5: Continue as academic innovators 3.3: Raising funds for your research 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media

Code	KSVBs	Course topic(s) (module.topic)
		4.5: Designing research with impact 4.6: Evaluating the impact of your research
VB6	Seek opportunities to network, to practise public engagement and to communicate effectively.	1.8: Sharing your vision with potential stakeholders 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.4: Pursue a career beyond academia 2.5: Continue as academic innovators 3.3: Raising funds for your research 3.7: Building networks, collaborations and teams 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media

Code	KSVBs	Course topic(s) (module.topic)
VB7	Be enthusiastic, self-confident, and self reflective.	1.4: Self-awareness and self-leadership 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.4: Pursue a career beyond academia 2.5: Continue as academic innovators 3.5: Leadership theories 3.7: Building networks, collaborations and teams 3.8: Managing people and performance 4.4a: Engagement formats: outreach and events 4.4c: Engaging and promoting your research using traditional and social media
VB8	Persevere, have integrity, be prepared to take responsibility, to lead, mentor and supervise.	1.4: Self-awareness and self-leadership 2.1 Postdocs are innovators in training 2.4: Pursue a career beyond academia 3.2: Research ethics and integrity, open research and research impact 3.5: Leadership theories 3.6: Cultural intelligence and inclusive leadership 3.7: Building networks, collaborations and teams 3.8: Managing people and performance
KR1	Current issues in the relevant disciplinary research literature.	1.2: The shifting research landscape 1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.6: Developing your research vision 4.5: Designing research with impact
KR2	Research theories and the practical application of a full range of research methods.	1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.6: Developing your research vision

Code	KSVBs	Course topic(s) (module.topic)
KR3	Relevant and up to date approaches to the management of research, including delivery to required timelines.	1.1: Reflective practice and commitment to lifelong learning as a researcher 1.7: Strategic and flexible approaches for pursuing your research vision 3.4: Tools for project management
KR4	The application of a wide range of technologies and advanced digital skills in support of research	1.2: The shifting research landscape 1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.7: Strategic and flexible approaches for pursuing your research vision 1.8: Sharing your vision with potential stakeholders 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4c: Engaging and promoting your research using traditional and social media 4.5: Designing research with impact
KR5	Major funding streams and programmes in the relevant research field.	1.2: The shifting research landscape 1.8: Sharing your vision with potential stakeholders 2.5: Continue as academic innovators 3.3: Raising funds for your research
SR1	Frame research questions and methodology in the context of competitive proposals for research funding.	1.2: The shifting research landscape 1.7: Strategic and flexible approaches for pursuing your research vision 1.8: Sharing your vision with potential stakeholders 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.5: Continue as academic innovators

Code	KSVBs	Course topic(s) (module.topic)
SR2	Undertake effective management of research projects and budgets, assess risks and apply for ethical approval where required.	1.7: Strategic and flexible approaches for pursuing your research vision 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 3.1: The nuts and bolts of starting a project 3.2: Research ethics and integrity, open research and research impact 3.4: Tools for project management
SR3	Produce intellectual insight and innovation in their own discipline to be shared with students, peers and wider stakeholders.	1.3: Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines 1.5: Creativity 1.6: Developing your research vision 1.7: Strategic and flexible approaches for pursuing your research vision 1.8: Sharing your vision with potential stakeholders 2.1 Postdocs are innovators in training 2.2 Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.5: Continue as academic innovators 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media 4.5: Designing research with impact
SR4	Authorship or co-authorship of publications and dissemination through a wide range of media.	1.8: Sharing your vision with potential stakeholders 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders

Code	KSVBs	Course topic(s) (module.topic)
		4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications 4.4c: Engaging and promoting your research using traditional and social media
SR5	Develop and sustain links with industry and other external organisations to grow collaborations and develop opportunities to access funding.	1.7: Strategic and flexible approaches for pursuing your research vision 1.8: Sharing your vision with potential stakeholders 2.2: Behaviours of innovators and entrepreneurs 2.3: Become entrepreneurs 2.3a: Become entrepreneurs: From opportunity to action 2.3b: Become entrepreneurs: Entrepreneurship in practice 2.3c: Become entrepreneurs: Making it happen 2.5: Continue as academic innovators 3.3: Raising funds for your research 3.7: Building networks, collaborations and teams 4.1: The theory and practice of public engagement and public/subject involvement 4.2: Meet our external stakeholders 4.3: Tools for engagement 4.4a: Engagement formats: outreach and events 4.4b: Engagement formats: co-production, dialogue and user/beneficiary-focused research and communications 4.4c: Engaging and promoting your research using traditional and social media 4.5: Designing research with impact 4.6: Evaluating the impact of your research