UNIVERSITY OF CAMBRIDGE
Institute of Continuing Education

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

2021-2022

Course code: CNRIL601 (Apprenticeship) and CNRIL602 (Postgraduate Certificate)

COURSE GUIDE

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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.

The curriculum for the Postgraduate Certificate in Research and Innovation Leadership was developed to meet and exceed the skills, knowledge and behaviours assessment requirements of the Academic Professional (Research) Apprenticeship Standard (as detailed by the Institute for Apprenticeships and Technical Education: https://www.instituteforapprenticeships.org/apprenticeship-standards/academic-professional/).

As such, the programme reflects the expectations of UK employers for researchers in the higher education (HE) sector and enables eligible individuals to complete the course with their tuition fees paid via their employer's contribution to the Apprenticeship-levy (see "Apprenticeship option").

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.

Course Aims

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

Knowledge and understanding

- evidence a comprehensive understanding of how research is conducted, within their own and related disciplines and in inter-disciplinary or trans-disciplinary contexts;
- 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;
- demonstrate how to effectively engage with relevant professional bodies and other external organisations, stakeholders and community partners to support and enhance their work;
- demonstrate the principles of reflective practice and the methods for applying reflective practice to their own professional development;
- 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;
- critically evaluate current research and advanced scholarship in their discipline;
- systematically and creatively deal with complex issues relating to their research;
- develop and evaluate methods for determining the effectiveness of academic activities such as the impact of research.

Skills and other attributes

- develop research questions and hypotheses prior to undertaking research in their subject discipline;
- communicate and disseminate their research clearly to specialist and non-specialist audiences using appropriate formats;
- 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;
- exercise initiative and personal responsibility, especially in areas of academic scholarship and critical thinking;
- demonstrate an understanding of the wider context (policy, economic, societal, technological, legal, cultural and environmental) in which higher education operates,

- act autonomously in planning and implementing opportunities to network and to communicate effectively;

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). Summative assessments will be discipline-relevant and tailored to work-based experience and practice. These may include, but are not limited to, critical analysis of case studies, assessment of evidence-based portfolios, discipline-specific reports and application preparation, assessment of presentations and projects, short answer questions, essays, data handling and analysis, and research evaluation. Students receive continual formative assessment throughout the course using a variety of strategies and techniques including regular feedback and reflection. Details of the specific assessment and criteria will be provided in individual module guides.

In addition, participants on the **apprenticeship** route will also 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.

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Core course development and facilitation team:

Hannah Fromageau (University of Cambridge Postdoc Academy / Cambridge Centre for Teaching and Learning) is a Senior Researcher Development Associate for postdoctoral researchers and research staff. Hannah specialises in the design and delivery of a range of skill-development courses, focusing specifically on leadership, coaching and mentoring, and personal effectiveness. Hannah's background is in professional development and, before joining the Researcher Development team in Cambridge, she worked in several London universities establishing and managing mentorship programmes and teaching on career and professional development courses. She gained Senior Fellow from the Higher Education Academy in 2015.

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.

Tom Monie is the Deputy Director of Academic Centres at the Institute for Continuing Education and a Fellow of Christ's College, Cambridge. He has held a Wellcome Trust Research Career Fellowship at the University and led a research group studying the innate immune system. He has a long-standing interest in lifelong learning and has been involved in the design and delivery of numerous discipline-specific courses as well as educational and training programmes on curriculum design, science writing, storytelling, audience engagement and effective communication.

Steve Joy (University of Cambridge Postdoc Academy / Cambridge Centre for Teaching and Learning) is the Head of Researcher Development, working with the team of Researcher Developers to drive innovation and continually improve the quality of researcher development in Cambridge. He also supports the wider researcher development agenda across the University, working with colleagues in professional and academic departments to identify priorities, set standards, and ensure robust information management. Steve is a member of the Executive Committee of the UK Council for Graduate Education. Steve has a particular interest in self-leadership and career management for early-career academics. He has written about these issues for The Guardian, founded the Early Career Blog, and contributed to several books on writing successful job applications. Steve's background is in German Studies, and he wrote his PhD on the fiction of Thomas Mann. He has five years' experience of supervising and lecturing at Cambridge and is also an accredited practitioner for both MBTI and Belbin Team Roles.

Specialist professional teaching will be delivered by a range of invited guest tutors, which may include, but is not limited to (alphabetically by surname):

Mary Beth Benbenek: Senior Teaching Associate, University of Cambridge Centre for Teaching and Learning

Beatrice Gini: Training Coordinator, University of Cambridge Office for Scholarly Communications

Diogo Gomes: Public Engagement Manager (School of Clinical Medicine and Biological Sciences), University of Cambridge Public Engagement Office

Sinead Healy: Research Governance Facilitator, University of Cambridge Research Office

Rhys Morgan: Head of Policy, Integrity and Governance, University of Cambridge Research Office

Katia Smith-Litiere: Knowledge Transfer & Entrepreneurship Project Manager, University of Cambridge Postdoc Academy

Lucinda Spokes: Head of Public Engagement, University of Cambridge Public Engagement Office

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

Venue

In-person: Face-to-face sessions will be delivered by subject specialists in one of several available spaces within the Postdoc Academy, most likely at the flagship Postdoc Centre on the Eddington Site, and participants should make every effort to attend these elements of the programme. 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 our 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

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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 2021/22 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.

Programme structure

The following pages provide additional detail on each of the four course modules, including approximate dates and anticipated order of topics. Module guides with final details and further specifics on dates, tutors, assessment and suggested readings will be provided in advance of each module following enrolment on the course.

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

Start Date:	Monday 18 October 2021
End Date:	14 January 2022
Teaching Dates:	Monday 18 October 2021 Friday 5 November 2021 Wednesday 17 November 2021 Thursday 2 December 2021 Tuesday 14 December 2021 Friday 14 January 2022 NB Dates are indicative and will include a mix of face-to-face and virtual delivery, with some full and some half-day sessions.
Tutors	Core development and facilitation team, internal and external guest contributors who are knowledgeable in specific facets of the listed topics
Venue:	Postdoc Centre at Eddington and remote delivery via video-based teaching platforms

Aims

In this module, participants analyse the political economy of higher education in the 21st century, with a primary focus on the UK. They identify their 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. Issues are presented, discussed and critiqued in the context of shifting ethical, social, and political expectations. Crucially, participants explore the values and knowledge – personal, collective, institutional – at play in this complex ecosystem. They are introduced to planning tools to help them strategically plan for the research they 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.

The topics to be covered, and their likely order of delivery, are presented below. Multiple topics may be presented in one week or single topics across multiple weeks. Further information will be provided in the detailed module guides to students upon enrolment in this course.

Pre-module preparation: Establishing a VLE personal profile, completion of pre-module background reading, homework and reflective log	
Topic	**Topic content**
1	Course welcome and context setting

		Reflective practice and commitment to lifelong learning as a researcher
	2	The shifting research landscape
	3	Exploring the nature and purpose of academic enquiry and the basis of good research practice within and across disciplines
	4	Self-awareness and self-leadership
	5	Creativity
	6	Developing your research vision
	7	Strategic and flexible approaches for pursuing your research vision
	8	Sharing your vision with potential stakeholders

Outcomes

By the end of this module, students should:

- 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;
- develop an understanding of the shifting research landscape: policies, funding streams and institutions influencing universities and the research environment as a whole;
- have a deeper understanding of the nature and purpose of humanistic and scientific enquiry and how these relate to good research across academic disciplines;
- gain insight into research in a transdisciplinary and interdisciplinary context;
- feel more confident developing their own discipline-relevant research questions and hypotheses with reference to current issues and future horizons;
- improve their self-awareness and be able to employ proven self-leadership strategies to more effectively achieve their goals;
- be able to harness their creativity to develop and assess their research vision;
- have been introduced to well-established strategic planning tools for taking their research vision to reality;
- understand the importance of flexibility in research planning to be able to respond to the unexpected;
- gain insight into how to engage with funders and other stakeholders to develop and communicate their research vision.

Spring 2022 (self-paced online)

Using entrepreneurial skills as a research leader (10 credits)

Start Date:	Tuesday 1 February 2022
End Date:	Thursday 31 March 2022
Teaching Dates:	This module is predominantly delivered via a self-paced, on-line training programme, supported by additional short synchronous sessions with subject experts. It will run through late winter and early spring 2022. Tuesday 1 February 2022 Friday 11 February 2022 Thursday 3 March 2022 Thursday 24 March 2022 Thursday 31 March 2022 NB Dates are indicative and will include a mix of face-to-face and virtual delivery, with some full and some half-day sessions.
Tutors	Katia Smith-Litiere, core development and facilitation team, internal and external guest contributors who are knowledgeable in specific facets of the listed topics
Venue:	Postdoc Centre at Eddington and remote delivery via video-based teaching platforms

Aims

This module explores the shared behaviours of successful innovators in research and other contexts. It uses lessons from entrepreneurial thinking 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. Participants gain knowledge of research enterprise and innovation ecosystems and develop skills relevant to creating value from their research through engagement and collaboration with industrial and academic collaborators, consultancy and work across other sectors.

 The topics to be covered, and there likely order of delivery, are presented below. Multiple topics may be presented in one week or single topics across multiple weeks. Further information will be provided in the module guides to students upon enrolment in this course.

Pre-module preparation: Establishing a VLE personal profile for p2i online course, completion of pre-module background reading, homework and reflective log	
Topic	**Topic content**
1	Postdocs are innovators in training
2	Behaviors of innovators and entrepreneurs

3	Become entrepreneurs
4	Become entrepreneurs: From opportunity to action
5	Become entrepreneurs: Entrepreneurship in practice
6	Become entrepreneurs: Making it happen
7	Pursue a career beyond academia
8	Continue as academic innovators

Outcomes

By the end of this module, students should:

- have identified key characteristics of researchers valued by collaborators and employers outside academia;
- understand how successful researchers and entrepreneurs share particular behaviours and how to develop these behaviours;
- be able to create and present research and research proposals with relevance to various professional and social contexts;
- 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;
- develop entrepreneurial approaches to establish collaborations in academia and beyond;
- learn how to recognise and/or create and communicate new research opportunities;
- gain insight into how to secure support and funding to pursue research and/or commercial opportunities.

Managing research projects and leading successful teams (20 credits)

Start Date:	Friday 8 April 2022
End Date:	Wednesday 22 June 2022
Teaching Dates:	Friday 8 April 2022
	Tuesday 26 April 2022
	Thursday 5 May 2022
	Friday 13 May 2022
	Thursday 26 May 2022
	Tuesday 7 June 2022
	Wednesday 22 June 2022
	NB Dates are indicative and will include a mix of face-to-face and virtual delivery, with some full and some half-day sessions.
Tutors	Core development and facilitation team, internal and external guest contributors who are knowledgeable in specific facets of the listed topics
Venue:	Postdoc Centre at Eddington and remote delivery via video-based teaching platforms

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.

The topics to be covered, and there likely order of delivery, are presented below. Multiple topics may be presented in one week or single topics across multiple weeks. Further information will be provided in the module guides to students upon enrolment in this course.

Pre-module preparation: Completion of pre-module background reading, homework and reflective log	
Topic	**Topic content**
1	The nuts and bolts of starting a project
2	Research ethics and integrity, open research and research impact
3	Raising funds for your research
4	Tools for project management
5	Leadership theories

6	Cultural intelligence and inclusive leadership
7	Building networks, collaborations and teams
8	Managing people and performance

Outcomes

By the end of this module, students should:

- 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;
- understand how to implement policies in the practice of research in a discipline-specific context, ensuring compliance and improving the quality of outputs;
- 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;
- develop an appreciation for the role of cultural intelligence in recruitment practices and team dynamics;
- learn strategies that enable effective communication with colleagues, teams or collaborators.

Syllabus for Module 4
Summer 2022

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

Start Date:	Thursday 30 June 2022
End Date:	Friday 23 September 2022
Teaching Dates:	Thursday 30 June 2022 Wednesday 7 July 2022 Wednesday 14 July 2022 Friday 23 September 2022 NB Dates are indicative and will include a mix of face-to-face and virtual delivery, with some full and some half-day sessions.
Tutors	Lucinda Spokes, Diogo Gomes, core development and facilitation team, internal and external guest contributors who are knowledgeable in specific facets of the listed topics
Venue:	Postdoc Centre at Eddington and remote delivery via video-based teaching platforms

Aims

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

The topics to be covered, and there likely order of delivery, are presented below. Multiple topics may be presented in one week or single topics across multiple weeks. Further information will be provided in the module guides to students upon enrolment in this course.

Pre-module preparation: Completion of pre-module background reading, homework and reflective log	
Topic	**Topic content**
1	The theory and practice of public engagement and public/subject involvement
2	Meet our external stakeholders
3	Tools for engagement
4	Engagement formats: outreach and events
5	Engagement formats: co-production, dialogue and user/beneficiary-focused research design and communications
6	Engaging and promoting your research using traditional and social media
7	Designing research with impact
8	Evaluating the impact of your research

Outcomes

By the end of this module, students should:

- have a better understanding of how research users and other stakeholders – including industry, government, funders, the media and wider public – set priorities and engage with research;
- have learned how to build societal, economic, policy and translational impact into their research;
- learn tools for evaluating the success and impact of their research;
- develop approaches for communicating with a range of different audiences, including engagement with the public and media.

Representative resources and background reading materials

- McAlpine, L., Turner, G., Saunders, S., & Wilson, N. (2016). Becoming a PI: Agency, persistence, and some luck! *International Journal for Researcher Development*, 7 (2): 106 - 122.

- McAlpine, L. (2015). Becoming a PI: From 'doing' to 'managing' research. *Teaching in Higher Education*, DOI: 10.1080/13562517.2015.1110789

- Norris, S. (2008) An Examination of Self-Leadership. *Emerging Leadership Journeys*, 1 (2): 43-61.

- WT Research Culture survey - https://wellcome.org/reports/what-researchers-think-about-research-culture

- Jones, S. (2011). How to Develop a Data Management and Sharing Plan. Digital Curation Centre. https://www.dcc.ac.uk/guidance/how-guides/develop-data-plan

- Why Plan S? cOAlition S. (2018). https://www.coalition-s.org/why-plan-s/

- Johnson, R. & Proudman, V. (2020). An Open Agenda: European Funder Approaches to Open Science. https://scholarlykitchen.sspnet.org/2020/02/26/guest-post-an-open-agenda-european-funder-approaches-to-open-science/

- The state of play: public engagement with research in UK Universities 2016 https://www.publicengagement.ac.uk/sites/default/files/publication/state_of_play_final.pdf

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

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

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

- Bolden, R., Gosling, J., O'Brien, A., Peters, K., Ryan, M., & Haslam, A. (2012). Academic leadership: Changing conceptions, identities and experiences in UK Higher Education – Summary. *Inspiring Leadership: Leadership Foundation for Higher Education,* 3 (4.1).

- Brown, T. & Wyatt, J. (2010). Design thinking for social innovation. *Stanford Social Innovation Review.* Pp 30-35.

- Senge, P., Lichtenstein, B., Käufer, K., & Bradbury, H. (2007). Collaborating for systemic change. *MIT Sloan Management Review,* 48 (2): 44-53.