



UNIVERSITY OF
CAMBRIDGE

Cambridge Centre for the Integration
of Science, Technology and Culture

Cambridge Centre for the Integration of Science, Technology and Culture

The Gateway to Research Excellence



Online Research Training Programme 2023

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Welcome Message

from Founding Director



Prof. Nicola Clayton FRS

- Founding Director, CCISTC
- Fellow of The Royal Society
- Fellow of The Royal Society of Biology
- Fellow of American Psychological Society
- Professor of Comparative Cognition, University of Cambridge
- Fellow, Clare College, University of Cambridge
- Chartered Psychologist of The British Psychological Society

As the Founding Director of University of Cambridge - Cambridge Centre for the Integration of Science, Technology and Culture (CCISTC) and on behalf of the Founding Co-Directors Professor Clive Wilkins (MMC) and Dr. Michael Zhou (Cantab), it gives me the great pleasure to welcome you all to collaborate with CCISTC.

Since its establishment, CCISTC's vision and emphasis are on collaboration, development and understanding across disciplines and cultures. We firmly believe in the concept of one world, where each and every one of us is not only dependent on, but also inspired by, the skills and ideas of those around us. All of us work better together when able to listen carefully and respond to the needs of others. The sharing of ideas and awareness of the needs of the world around us in its broadest sense is imperative. We aim to develop the necessary skills to implement our next new future.

We have worked towards our visions by collaborating with partner higher education institutions, funding bodies, and scholars through pioneering research, and by empowering their students, scholars and professionals with various training and exchange programmes we develop together with our partners. We also work with policymakers, professional societies and associations to provide advice and guidance on formulating policies and standards by contributing to advisory panels, committees, workshops, etc.

I hope you find the work we do exciting and are inspired to share our visions and work together with us!

Prof. Nicola Clayton, FRS
Founding Director, CCISTC



About Us

CCISTC



**UNIVERSITY OF
CAMBRIDGE**

Cambridge Centre for the Integration
of Science, Technology and Culture

The Cambridge Centre for the Integration of Science, Technology and Culture (CCISTC) is an interdisciplinary centre within the University of Cambridge. We work on interdisciplinary research projects, organise relevant conferences, seminars and programmes to empower people. CCISTC also aims to promote discussions and collaborations among academics, students, and our international partners (such as policy makers, education institutions, societies, associations, etc.) across the world.

CCISTC provides a stimulating platform for the following areas:

- Research collaborations with other higher education institutions and funding bodies in the field of natural and artificial intelligence, cognition, sciences, technology and arts.
- Working with policy makers, professional societies and associations to provide advice and guidance on formulating policies and standards.
- Together with partners, organising summer programmes, competitions, visiting scholar programme, online research training programmes, and various international exchange programmes, conferences and seminars for inspiring and exchanging innovative ideas.
- Creating a global network of education institutions and professional bodies to facilitate knowledge exchange.

Directors



Prof. Nicola Clayton, FRS

- Founding Director, CCISTC, University of Cambridge



Prof. Clive Wilkins

- Founding Co-Director, CCISTC, University of Cambridge



Dr. Michael Zhou, PhD (Cantab)

- Founding Co-Director and Executive Director, CCISTC, University of Cambridge

Online Research Training Programme

Overview



"The number of scientific researchers is declining globally, which will cause tremendous issues for the scientific community and human beings in long term. The CCISTC Summer Research and Online Research Training Programmes are designed to offer research training to those who normally don't have the access to research opportunities. We hope it would nurture the younger generations' interests in science and prepare them with relevant research skills in the chosen subject." -Prof. Nicola Clayton, FRS

Introduction

Partnering with Maxer Education Institute, we are proud to provide a wide range of online research training programmes in various disciplines to high school, undergraduate and postgraduate students. Our Cambridge academics and supervisors provide lectures, research training workshops, small group supervisions and research meetings to students based on their research progress and academic abilities. Our supervisors also provide consultation on research topic selections and research planning. Students will produce their own research papers at the end of the programme.

Programme Design

The design of the programme ranges from 6 weeks to 13 weeks. Students will work in different individual research assignment(s) under the supervisions from our Cambridge academics and PhD students.

- Entry Level Programmes are 6 weeks long and suitable for students who prefer an entry-level programme.
- Advanced Level Programmes are 13 weeks long and suitable for students who want to commit fully to a research-based programme with all the lectures and workshops included in the 6-week programme. They will also have further training and discussions with Cambridge academics and PhD students to complete a research paper/report.

Online Research Training Programme

Overview

Why join this programme?

Credibility

This programme is designed by a group of reputable academics and leading educators from the University of Cambridge to provide the best education experience to our students in different research areas. It focuses on improving students' understanding of relevant research areas, and their research skills and development.

Goal-orientated

This programme is a valuable opportunity for motivated and self-determined students who want to extend their knowledge of a research topic and improve their academic and professional skills.

Knowledge Exchange

Through the regular online supervisions and research meetings, students can ask questions, exchange new ideas and get the most out of their research leader and supervisors.

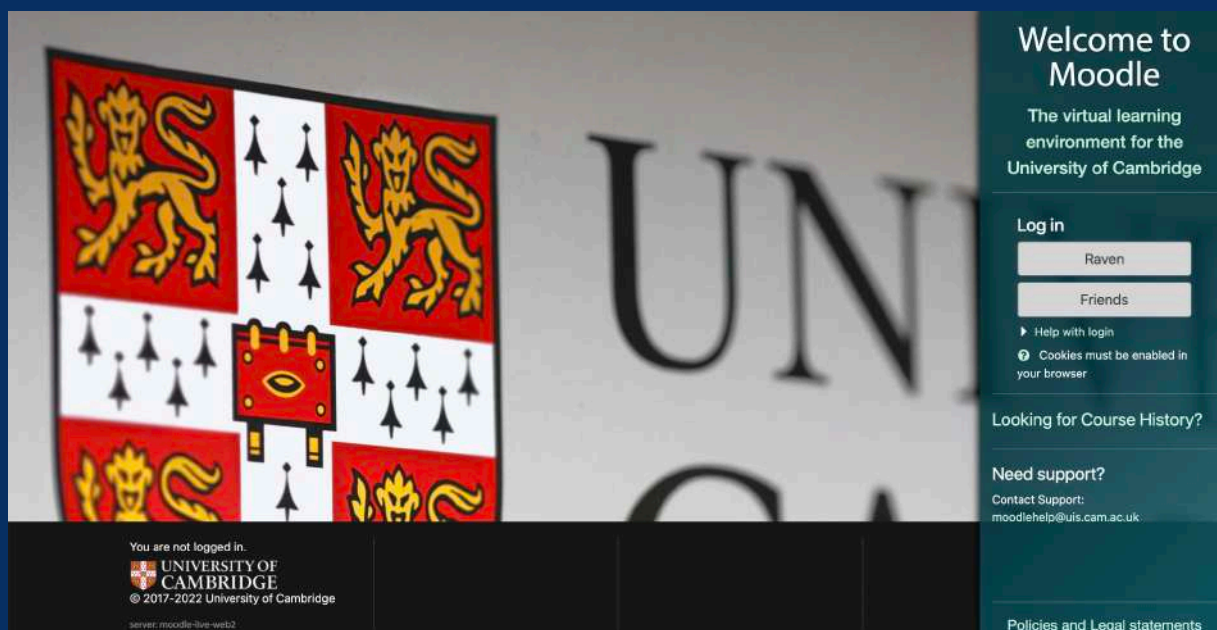
Flexible Learning via Zoom and Moodle

All online lectures and meetings are delivered via Zoom. Students can study online from the comfort of their own homes and interact with their lecturers and supervisors. Students are given access to the learning materials from the University of Cambridge Virtual Learning Environment Moodle student system.

Beneficial Certification and Reference

Upon completion of the programme, students will be granted:

- Certificate of Completion
- A programme transcript/report detailing student's performance
- Recommendation Letter(s)



Welcome to Moodle

The virtual learning environment for the University of Cambridge

Log in

Raven

Friends

▶ Help with login

🔒 Cookies must be enabled in your browser.

Looking for Course History?

Need support?

Contact Support:
moodlehelp@uis.cam.ac.uk

Policies and Legal statements

You are not logged in.

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server: moodle-live-web2

Online Research Training Programme

Programme Information



[ONLINE APPLICATION](#)



This programme is suitable for

- ① Participation in the programme is open to senior high school students, and all undergraduate and postgraduate students who want to
 - Learn and improve their research skills
 - Get professional feedback from professional academics and researchers
 - Work on a final year project/research project as their school or university assignment
 - Receive academic references
 - Gain insights and development in a certain research field
- ② English language level B1 and above/ English is the language of instruction at home school or university
- ③ Age 16 and above

Programme Dates

6-week entry level:

January Intake: 16th Jan - 3rd Mar 2023

July Intake: 24th July - 3rd Sep 2023

13-week advanced level:

January Intake: 16th Jan - 21st Apr 2023

July Intake: 24th July - 22nd Oct 2023

Tuition Fee

6-week: £ 2,000 per student

13-week: £ 3,000 per student

Application Process

We review applications on a rolling-basis



Online Sessions Highlights

Online Research Training Programme

Awards



Awards upon satisfactory completion of the programme

Students who successfully finish the programmes will be granted the follow documents to verify their achievements:

6 - Week Programme

- ① An Official Certificate of Completion issued by CCISTC University of Cambridge
- ② An Official Programme Transcript / Report Issued by CCISTC University of Cambridge
- ③ A Recommendation Letter from CCISTC University of Cambridge* subject to students' performance meeting the required standards

13 - Week Programme

- ① An Official Certificate of Completion issued by CCISTC University of Cambridge
- ② An Official Programme Transcript / Report Issued by CCISTC University of Cambridge
- ③ A Recommendation Letter from CCISTC University of Cambridge* subject to students' performance meeting the required standards
- ④ A Recommendation Letter from the Research Leader* subject to students' performance meeting the required standards



Certificate of Completion



Transcript/Report



Recommendation Letter



Recommendation Letter
(from the Research Leader)

Alumni Achievements

We are extremely proud of our alumni who challenged themselves in our research programmes and since have achieved great academic success and continued to study for a Bachelor, Master's or PhD degree in the most prestigious universities. Many of our former students have received recommendation letters from our Research Leaders and got accepted into the top UK and International universities such as the University of Cambridge, University of Oxford, UCL and Imperial College. Some have also published their papers in international or national journals successfully which strongly strengthens and adds value to their application and showcase their academic background.

What is included

- Tuition fees for all sessions included in the sample schedule for the 6/13 - week programme
- Access to the University of Cambridge Virtual Learning platform Moodle

Online Research Training Programme

Sample Schedule

Date	Element 1	Element 2	Element 3	Element 4
Week 1	Online Induction	Research Proposal Workshop 1-3	Practical 1	Academic English workshop 1
Week 2		Research Proposal Workshop 4-5	Practical 2	Academic English workshop 2
Week 3	Lecture 1	Group supervision 1	Practical 3	Academic English workshop 3
Week 4	Lecture 2	Group supervision 2	Practical 4	Academic English workshop 4
Week 5	Lecture 3	Group supervision 3	Practical 5	Academic English workshop 5
Week 6	Submission Week	Finish writing your research proposal Research Proposal Submission		
Week 7	Research Proposal Revision	Programme completion (6-week students)		
Week 8	Research Meeting 1 with Lecturer		Practical 6	Academic English workshop 6
Week 9		Group supervision 4	Practical 7	Academic English workshop 7
Week 10	Research Meeting 2 with Lecturer		Practical 8	Academic English workshop 8
Week 11		Group supervision 5	Practical 9	Academic English workshop 9
Week 12	Research Meeting 3 with Lecturer		Practical 10	Academic English workshop 10
Week 13	Submission Week	Finish writing your research report Research Report Submission		
Week 14&15	Research Report Revision	Receive your certificate, transcript, reference letter Programme completion (13-week students)		

Available Subjects

With Research Leaders and Dates



Subject	Research Leader	Available Dates
Artificial Intelligence and Computer Science	Prof. Pietro Lio'	January 2023 Intake July 2023 Intake
Architecture and Sustainability	Prof. John Orr	July 2023 Intake
Business	Prof. Matthew Grimes	January 2023 Intake July 2023 Intake
Education	Prof. Geoff Hayward Prof. Colleen McLaughlin	January 2023 Intake July 2023 Intake
Engineering	Prof. Andy Woods, FRS	January 2023 Intake July 2023 Intake
Engineering	Prof. Duncan McFarlane	July 2023 Intake
Finance and Economics	Dr. Matthias Dörrzapf	January 2023 Intake July 2023 Intake
Law	Dr. Catherine MacKenzie	January 2023 Intake July 2023 Intake
Medicine and Health Care	Prof. Thomas Krieg	January 2023 Intake July 2023 Intake
Medicine and Health Care	Prof. Ian Goodfellow	July 2023 Intake
Nanoengineering / Materials Science	Prof. Jason Robinson	January 2023 Intake July 2023 Intake
Maths and Physics	Dr. Matthias Dörrzapf	July 2023 Intake
Psychology	Prof. Nicola Clayton	January 2023 Intake July 2023 Intake
Sociology	Prof. Patrick Baert	January 2023 Intake July 2023 Intake

Learn more about our Faculty
[\(Pages 14-19\)](#)

FACULTY INFORMATION

ONLINE APPLICATION

Online Research Training Programme

Structure

Two Programmes Available

- **Entry Level: 6 weeks**
- **Advanced Level: 13 weeks**

The length of the programme you should opt for depends on your academic background and academic goals. Both 6-week and 13-week programmes include a complete research skills training course, academic lectures, practical sessions, group supervisions and Academic English Enhancement workshops. In terms of assessment, students from both programmes are required to submit a research proposal for review.

Students joining the 13-week programme will have further training and discussions with Cambridge academics and PhD students to complete a research project. By the end of the programme, they are required to submit a research report for review.

Research Skills and Writing Workshops

To fully equip students with the necessary research and academic skills for the programme, a series of workshops are offered to teach students fundamental research skills and academic writing. At the beginning of the programme, students will attend a series of Research Proposal Writing Workshops via the Cambridge University Virtual Learning Environment (Moodle) to study about the research process and write a research proposal. Our supervisors will organise weekly feedback sessions to follow up with students learning progress, give feedback on their exercises and answer any questions they may have from the workshops. Students will also learn how to read a journal article effectively and learn about everything regarding studying and PhD education from our Cambridge PhD students. In addition, our 13-week programmes will include extra workshops on research report writing and designing a personal academic website, to help students prepare their final research report and present themselves to academia professionally.



Online Research Training Programme

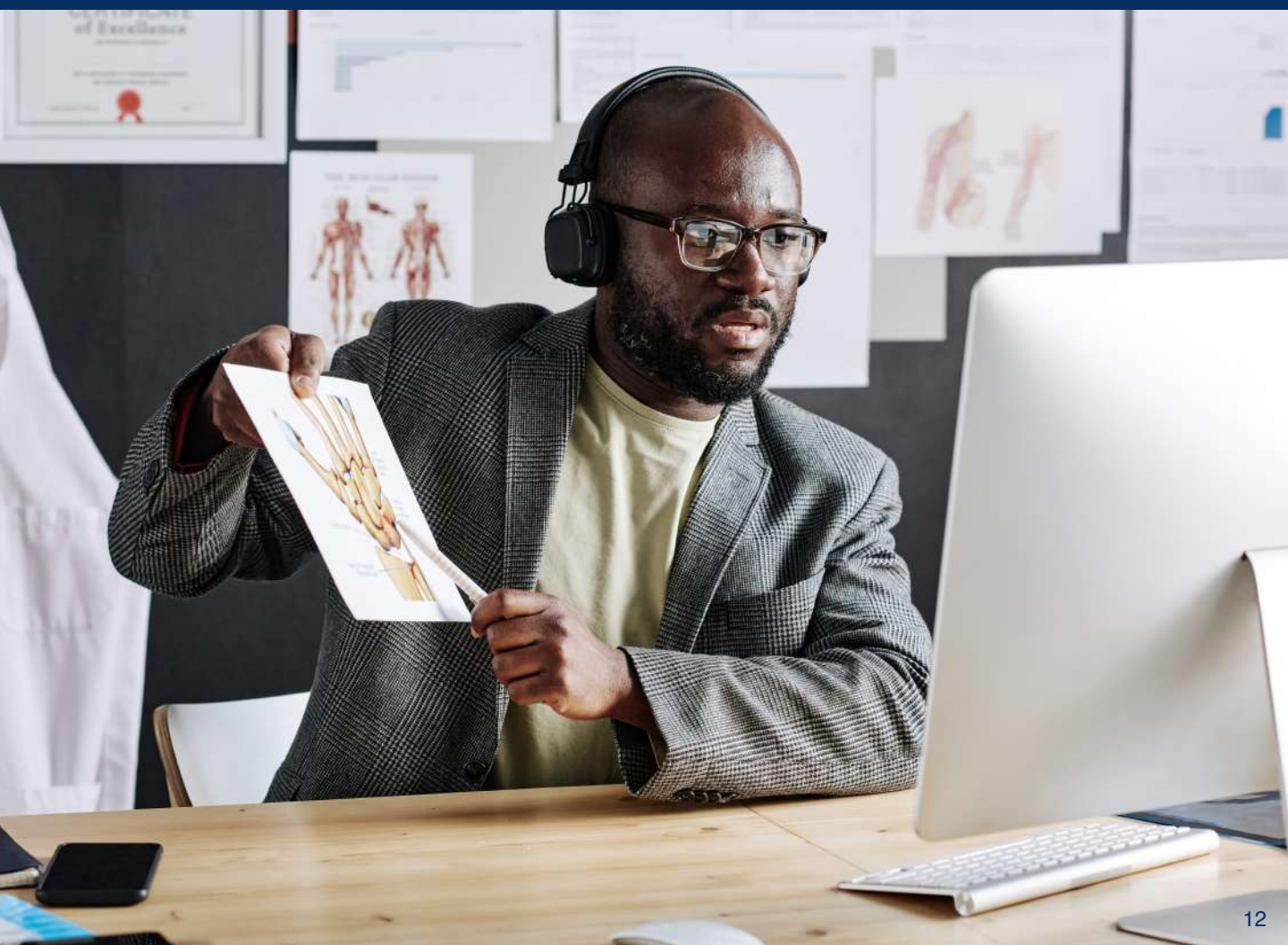
Structure

Academic Lectures & Practical Workshops

Students will attend 6 hours of academic lectures delivered by the Research Leader followed by practical sessions offered by the supervisor. These academic sessions will provide an overview and elaboration of the research topics and relevant research methodologies and guidance on how to investigate and study them. Students will be able to choose one or decide on a relevant topic to work on for their research proposal/report. Students will be given the opportunity to ask questions to the Research Leader related to the lectures and projects at the end of the sessions.

Group Supervisions

Supervision is the Cambridge word for "tutorial". It is a small-group tutorial session that provides an opportunity to explore a subject more deeply, discuss work and ideas, and receive regular feedback. Our PhD student supervisor will meet students weekly to provide extra guidance and support during the programme. They will help students to achieve their research milestones and offer tips and techniques to further advance their academic skills and understanding of the research topic. Supervisors will also review students' work and guide improvement. Supervision sessions provide an excellent opportunity for students to discuss any issues and problems students may have and to ensure that everyone is on the right track. Students can also learn more about their life and experience of studying as a PhD students in the UK.



Online Research Training Programme

Structure

Research Meetings with Research Leader (Exclusive to 13-week Programme)

Exclusively to the students of the 13-week programmes, students will attend 3 research group meetings with the Research Leader in the later stage of the programme. Students will meet with their Research Leader to discuss their research project and get feedback from an expert in the research field. Online face-2-face meetings allow students to discuss and exchange ideas directly with the Research Leaders and get immediate responses. Students will be attending in groups and reporting their research and writing progress during the meeting. Our Research Leader and supervisor will work closely together to supervise and monitor students' work during the course of their research journey.

Programme Individual Assessments

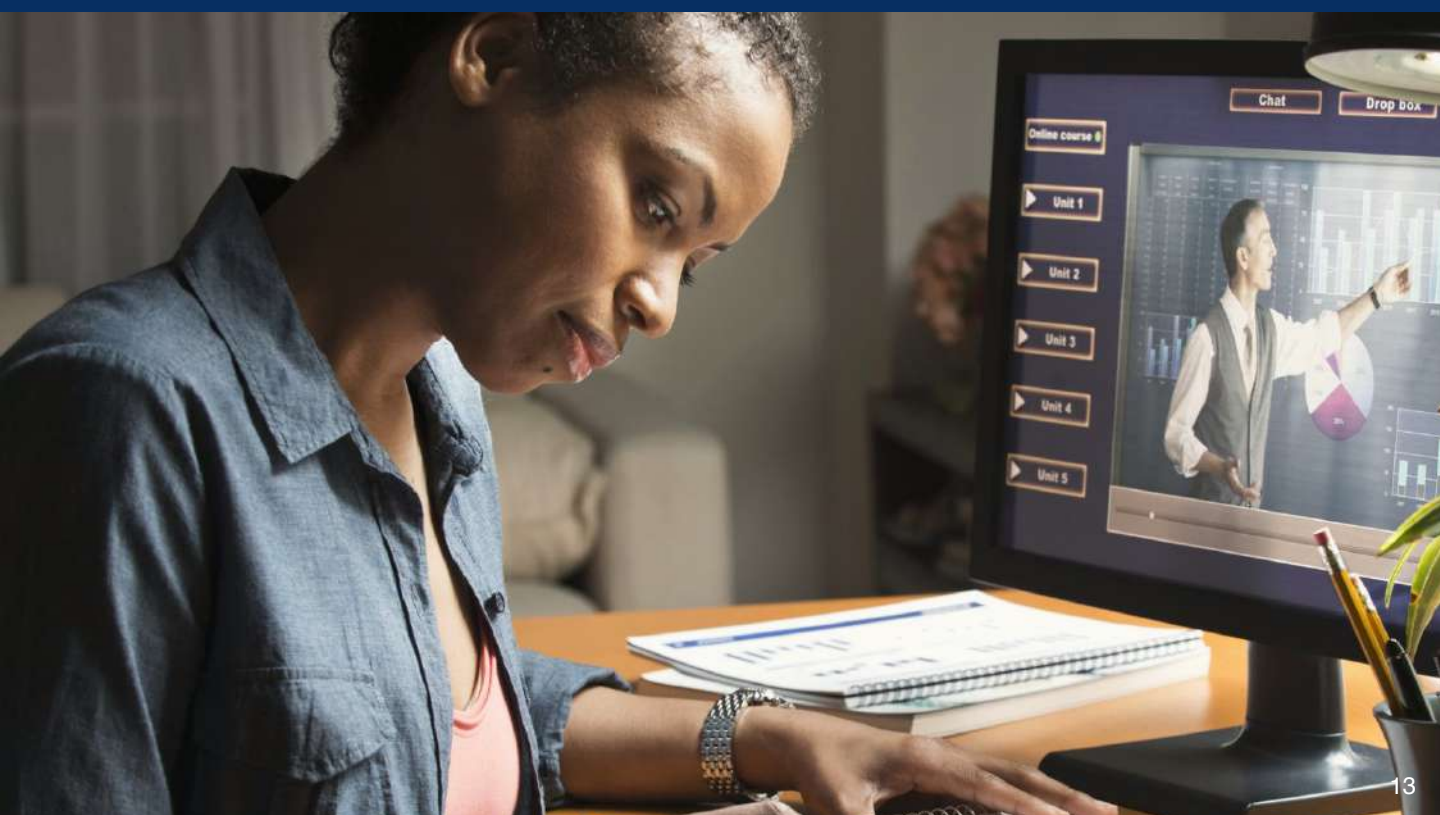
- **6-week programme assessment**

Research proposal: Students are required to submit a 2000 words individual research proposal to the research leader for review and evaluation.

- **13-week programme assessments**

Research proposal: Students are required to submit a 2000 words individual research proposal to the research leader for approval and evaluation before they confirm the research topic and methodologies.

Research report: Students are required to submit a 3000 words research report to the research leader for review and evaluation.



Faculty Information

Artificial Intelligence and Computer Science



Prof. Pietro Lio'

- Professor, Department of Computer Science and Technology, University of Cambridge
- Member of the Artificial Intelligence group, University of Cambridge
- Fellow, Clare Hall, University of Cambridge

Research Interests

- Machine Learning
- Text mining (transformers)
- Image and video analysis (transformers and GANs)
- Robotics and games (deep reinforcement learning)

Architecture and Sustainability



Prof. John Orr

- Professor of Structural Engineering, University of Cambridge
- Fellow, Magdalene College, University of Cambridge

Research Interests

- Sustainability
- Concrete and modern methods of construction
- Architectural design and practice

Business



Prof. Matthew Grimes

- Professor of Entrepreneurship and Sustainable Futures, University of Cambridge
- Director of the MPhil in Innovation, Strategy & Organisation Programme, Judge Business School, University of Cambridge
- Co-Director of the Entrepreneurship Centre

Research Interests

- Social entrepreneurship around the world
- Identifying opportunities for social entrepreneurship
- Evaluating business models for social entrepreneurship
- Using design thinking for social change

Faculty Information

Education



Prof. Geoff Hayward

- Professor of Education, University of Cambridge
- Head of Education Faculty, University of Cambridge

Research Interests

- Vocational education and training policy and practice
- Social disadvantage and education
- Transitions into Higher Education and the labour market
- Learning transfer



Prof. Colleen McLaughlin

- Emeritus Professor of Education, University of Cambridge
- Fellow, the Royal Society of Arts

Research Interests

- Educational reform and development
- Culture, politics and global justice
- Care in education, counselling, psychology and well-being
- Teacher action and practitioner research

Engineering



Prof. Andy Woods, FRS

- BP Professor and Head of BP Institute, University of Cambridge
- Fellow, The Royal Society
- Professorial Fellow, St. John's College, University of Cambridge

Research Interests

- Mathematical and physical modelling of different flow *Experimental and theoretical models of geological carbon storage
- Geothermal heat recovery from superheated systems
- Turbulent buoyant plumes and gravity currents in the ocean and atmosphere
- Air flows in buildings

Faculty Information

Engineering



Prof. Duncan McFarlane

- Professor of Industrial Information Engineering, University of Cambridge
- Head of Distributed Information & Automation Laboratory, Department of Engineering, University of Cambridge
- Fellow, St John's College, University of Cambridge

Research Interests

- Distributed, intelligent industrial automation
- Low-cost approaches to digital industrial solutions
- Resilient and reconfigurable systems in manufacturing and logistics
- RFID integration

Finance and Economics



Dr. Matthias Dörrzapf

- Director of Scholarships and International Programmes and Director of Studies, St John's College, University of Cambridge
- Fellow at St John's College, University of Cambridge
- Former Director of Research, Deutsche Bank (New York, Frankfurt)

Research Interests

- Utility and Risk Aversion
- Capital Asset Pricing Model
- Risk Neutral Pricing
- Binomial Tree Models

Faculty Information

Law



Dr. Catherine MacKenzie

- Director of Studies in Law, Clare Hall, University of Cambridge
- Director of Studies in Law and Land Economy, Homerton College, University of Cambridge
- Dean of Degrees of Green Templeton, University of Oxford
- Barrister and Governing Master of the Bench, The Honourable Society of the Inner Temple

Research Interests

- International Organisations, including United Nations, International Financial Organisations, International Maritime Organisations, International Environmental Organisations (FAO, UNEP, UNFCCC, treaty secretariats), International Refugee & Human Rights Organisations (UNHCR), Regional Organisations (EU, ASEAN, African Union), International Organisations and International Peace & Security
- Framework of International Law
- International Environmental Law
- International Trade Law
- International Commercial Law

Medicine and Health Care



Prof. Ian Goodfellow

- Professor of Virology, Department of Pathology, University of Cambridge
- Deputy Head of Department (Research), Department of Pathology, University of Cambridge

Research Interests

- Characterisation of the novel mechanism of calicivirus protein synthesis
- Characterisation of calicivirus replication complex formation
- Identification and characterisation of RNA-protein interactions required for calicivirus replication

Faculty Information

Medicine and Health Care



Prof. Thomas Krieg

- Clinical Professor for Experimental Cardiovascular Medicine, University of Cambridge
- Honorary Consultant Physician, Cambridge University Hospitals NHS Foundation Trust

Research Interests

- Myocardial ischaemia
- Mitochondria
- Reperfusion injury

Nanoengineering/ Materials Science



Prof. Jason Robinson

- Professor of Materials Physics, University of Cambridge
- Joint Head of Department of Materials Sciences and Metallurgy, University of Cambridge
- Fellow, St John's College, University of Cambridge

Research Interests

- Magnetism & electromagnetism
- Superconducting Spintronics
- Magnetic materials
- Nano materials and nano engineering

Maths and Physics



Dr. Matthias Dörrzapf

- Director of Scholarships and International Programmes and Director of Studies, St John's College, University of Cambridge
- Fellow at St John's College, University of Cambridge
- Member of the Department of Applied Mathematics and Theoretical Physics, High Energy Physics group, University of Cambridge

Research Interests

- Applied Mathematics and Theoretical Physics
- High Energy Physics
- Conformal Field Theory
- Representation Theory

Faculty Information

Psychology



Prof. Nicola Clayton, FRS

- Fellow, The Royal Society
- Fellow, The Royal Society of Biology
- Fellow, American Psychological Society
- Chartered Psychologist, The British Psychological Society
- Professor, Comparative Cognition, University of Cambridge
- Fellow, Clare College, University of Cambridge
- Founding Director, CCISTC, University of Cambridge

Research Interests

- Psychology and comparative cognition
- General principles of memory and mental time travel
- Cross-cultural studies of cognition
- Arts and Science Integration

Sociology



Prof. Patrick Baert

- Professor of Social Theory, University of Cambridge
- Fellow and Director of Studies, Selwyn College, University of Cambridge
- Fellow, the Royal Society of Arts

Research Interests

- Sociological Theories
- Class, inequalities, mobility
- Media and Culture
- Cultural sociology and the theory of cultural trauma



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