

Oxford Certificate Programmes at Worcester College

- Intensive Residential Study Abroad Programme for University Students -

Academic Programme Outline

Programmes for University Students

Course Overview Winter 2025



1. Introduction

The Oxford Certificate Programme at Worcester College (University of Oxford) for university students is an academic study abroad programme that offers cutting-edge subjects designed to complement a student's existing studies, providing them with methodologies and case studies that will set them above their peers.

Students participate in academic courses on various subjects and experience teaching in an authentic Oxford college setting. This will be done according to the Oxford teaching model: small group interactive classes with individualised feedback and class participation. All academic teaching the courses will be tutors at the University of Oxford or the University of Cambridge.

Participants will live in Oxford college dormitories or local hotels, and they will dine in Oxford dining halls. All teaching will happen in small groups within Worcester college or Oxford university premises. All of this will offer participants an experience that will be as close as possible to attending Worcester College as a student of the University of Oxford.

In support of the academic content, the programme offers a wide range of activities. These include visits to the main university sites such as the Oxford Union and the Bodleian Library, in addition to other colleges and Oxford's world-renowned museums and galleries. Trips further afield, such as to Cambridge and Blenheim Palace, compliment an extensive array of evening speakers and further activities.

2. Worcester College (University of Oxford)

Worcester College is one of the historic colleges of the University of Oxford. It was founded in 1714, but it is on the same site and in direct succession to Gloucester College, which was founded in the late 13th century.

Today, the college teaches almost every subject offered by Oxford, from Economics and Management to English Literature and Fine Art, from Medicine to Law, Artificial Intelligence to International Relations, and it enjoys multiple links with Oxford's Said Business School in particular.

This academic offering takes place in one of the most stunning of Oxford's colleges: medieval and 18th century buildings are set in Oxford's finest gardens and a lake, and all this is alongside state-of-the-art modern facilities, such as the recently built Nazrin Shah center. We are also the only college to have our sports fields and tennis courts within the college walls, together with a boat house on the river.



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3. Programme Dates

- Session I Sunday 12 January Saturday 25th January 2025
- Session II Sunday 2 February Saturday 15 February 2025

4. Overview of all Courses

Session I (Week 1)	Session I (Week 2)	Session II (Week 1)	Session II (Week 2)
Law / Intellectual Property Rights Law and IP Rights Management	Law / Law in Action & Law and Punishment	Law / International Dispute Settlement	Law / Business Law
Electrical Engineering	Power Engineering and Engineering	Economics / Behavioural Economics	Economics / Financial Crises
Control Science and Engineering	Thermophysics		
(Telecommunications)	Mechanical Engineering		
	Nuclear Science and Technology		

5. Academic Course Offerings

Law

Law / Intellectual Property Rights Law and IP Rights Management

Instructors: Prof Dev Gangjee and Dr Robert Pitkethly

The first part of this course of Intellectual Property Rights Law, will have a special emphasis on Branding and Trade Marks, Geographical Indications and Copyright law. Elements such as the political economy of IP, collective and open innovation, the significance of registration for intangibles, and rights in data will also be covered.

The second part of the course in intellectual property rights management aims to give students a general overview of the three main regimes of IP: copyright, patents and trademarks. This will include discussions on the justifications of intellectual property; the requirements necessary to garner protection for literary or artistic works, inventions and brand logos; the infringement of these various rights; and the remedies available.



Law / Law in Action and Law and Punishment Instructor: Prof Keith Hawkins

The first few days of this course will provide students with an in-depth knowledge of the functions of the rule of law in common law jurisdictions, as well as to consider law in a practical manner. These lectures analyse the nature and importance of rules in legal systems and examine some of the main difficulties associated with the implementation of laws, rules, and regulations.

The last days of this course will focus on criminal law. Crime is a major social problem. Equally difficult is the question of how the legal system responds to it. This course analyses current ideas informing British thinking and practice with the added perspective of American experience. It explores the structure of the criminal justice system, emphasising the extensive and significant discretionary decisions that are made throughout in the process of creating a criminal case and its culmination in the sentencing and punishment of the convicted offender. Consideration is given to the 'effectiveness' of the system, covering ideas from rehabilitation to risk management and exclusionary social control. More practical problems, relating to imprisonment and community sanctions, are also addressed, since they currently pose real policy dilemmas for government and the legal system.

Economics

Economics / Behavioural Economics

Instructor: Dr Ximeng Fang

Behavioural economics enriches standard economics with insights from psychology to build a more realistic understanding of how and why people behave the way they do in the real world. The objective of this course is to introduce students to principles, methods, and recent advances in behavioural economics. It will be structured around how people systematically deviate from neoclassical models in terms of (1) preferences (e.g., self-control problems, reference dependence), (2) beliefs (e.g., overconfidence), and (3) decision-making (e.g., limited attention), with an emphasis on real-world applications to topics such as household finance, job search/workplace behaviour, and climate change.

Economics / Financial Crises

Instructor: Andrew Farlow

The objective of this course is to provide an overview of the causes and the events of the recent financial crisis, as well as of the policy response by governments and central banks. The first two lectures will discuss the critical aspects of the evolution of financial markets and institutions that have led to the crisis. The next two lectures will go over the events of the crisis and the actions undertaken by government and central banks around the world. The fifth lecture will recap before the multiple- choice test. The last two lectures will put the recent crisis in a historical perspective and compare alternative views on the causes of the crisis.



Engineering

All Instructors for Engineering are currently to be confirmed. A summary of subjects covered include:

Engineering / Materials and the Future of Engineering Instructor: Prof Emilio Martínez-Pañeda

This course begins by asking the question of why some engineering components fail, and will then proceed to investigate this question while examining the future of engineering components. Classes will include material-environment interactions and using state of the art technologies to engineer net-zero challenges before a group project will see students put these learnings to the test.

Engineering / Dynamic Electrical and Control Engineering Instructors: Dr Kawsar Ali and Dr Huanming Chen

This course opens with classes concerning how students can design better chargers for phones and laptops, before moving to how to design an efficient and lightweight electric vehicle power train. In addition to a visit to the Royal Institute of Engineering, the students will then cover Control engineering, before beginning a major evaluation project about how to build better bridges.

Evening Talks Series

Alongside these courses are a range of evening talks, providing more focused explorations of specific subjects complimentary to the main academic content. These talks are conversations with plenty of question time, allowing students to interact with top people in these fields in an informal setting, whilst also learning aspects of a subject at the cutting edge of these fields. Specific talks in recent courses have included EU Influences upon *AI and Finance*, Ethics, *Finance and the Next Crash* and *Pricing and Market Power*.

6. Teaching Academics

All instructors are leading academics, including professors, academic tutors and lecturers, senior post-doctoral researchers and PhD students from the University of Oxford and/or the University of Cambridge.



Dr Kawsar Ali

Departmental Lecturer in Medical Power Electronics Department of Engineering Science

Dr Ali previously worked as an Operations Officer with the Indian Oil Corporation before doing his PhD in Singapore. He went on to become a postdoctoral researcher with the Power Electronics Group (<u>https://eng.ox.ac.uk/power-electronics-group/</u>) before becoming a Departmental lecturer. Dr Ali works in a broad range of power electronics applications – starting from microwatt-scale energy harvesting for the Internet of Things (IoT), through kilowatts of power conditioning for datacenter and electric vehicle applications, and up to megawatt-scale pulsedpower processing for biomedical application such as transcranial magnetic stimulation (TMS).

Prof Amro Awad

Associate Professor in Electrical Engineering Tutorial Fellow at University College

Prof Awad previously led the Secure and Advanced Computer Architecture (SACA) research group at NC State as a tenured Associate Professor. Besides academic experience, he had several industrial stints at HP Labs, AMD Research, and MediaTek USA. He also worked at US government labs, including Los Alamos National Lab, Sandia National Laboratories, and Air Force Research Labs.

Prof Awad has more than 8 granted U.S. patents, has been inducted to the prestigious IEEE TCCA HPCA Hall of Fame, and has been an Associate Editor (since Feb. 2024) of the ACM Transactions on Architecture and Code Optimization (TACO). His team's research outcomes were featured in the top conferences in computer architecture and nominated for best paper awards (e.g., IEEE/ACM MICRO'23, IEEE VR'22, ACM ICS'21). He is a recipient of the Bennett Faculty Fellowship (2023) and Goodnight Early Career (2023) awards. He served as a Program Committee chair and General chair of major conferences such as IEEE ICCD'22 and IEEE IISWC'19, respectively.

• Dr Huanming Chen

Postdoctoral Researcher Department of Engineering Science University of Oxford

Dr Chen joined the University of Oxford as Postdoctoral Researcher in Solid Mechanics and Materials Engineering Group in 2022. He received his BEng (Hons) in Civil Engineering from the University of Nottingham. He obtained the PhD degree in Engineering Science in 2021 from the University of Oxford for his dissertation on thermomechanical behaviours in thermoplastic polyurethane.



His current research spans biodegradable polymers, chemo-mechanical behaviours, hydrolytic mechanism, experimental characterisation, constitutive modelling, designing polymer structures, etc.Huanming's research focuses on the rate-temperature-dependent investigations on polymers and their composites, dynamic mechanism of structures, additive techniques, impacting and high-rate deformations, and FE modelling on both polymer and polymer composites.

• Dr Simon Cowan Associate Professor of Economics Wigmore Clarendon Fellow and Tutor in Economics

Prof Cowan's research is on theoretical models of pricing in imperfect competition, with a recent focus on price discrimination and its welfare effects. He has also worked on the regulation of privately-owned utilities. Regulatory Reform: Economic Analysis and British Experience (MIT Press), written with co-authors Mark Armstrong and John Vickers, was published in 1994. He has papers in the American Economic Review, The Economic Journal and the Rand Journal of Economics, and he is a former editor of Oxford Economic Papers. He teaches undergraduate courses in Introductory Economics, Microeconomics, Macroeconomics, the Economics of Industry and International Economics. He also teaches environmental economics, and Industrial Organization to graduate students. He was Head of Department between October 2019 and September 2020.

• Dr Ximeng Fang

Postdoctoral Research Fellow Said Business School University of Oxford

Ximeng completed his PhD in Economics at the University of Bonn. His research interests lie in behavioural economics, environmental economics and applied microeconomics. His methodological portfolio includes the design of randomised field experiments as well as the use of quasi-experimental methods and other microeconometric techniques. In some of his previous work, he has studied the role of non-monetary interventions in encouraging household energy and water conservation behaviour when implemented through smart metering and digital technology. Ximeng is now a Postdoctoral Research Fellow at the Oxford University Centre for Corporate Reputation. He is working with Stefania Innocenti, Departmental Research Lecturer at the Smith School of Enterprise and the Environment, and Alan Morrison, Professor of Law and Finance at Saïd Business School, on a project that evaluates the potential of edutainment and virtual reality for fostering pro-environmental behaviour.



Prof Dev Gangjee
Professor of Intellectual Property Law
Faculty of Law
St Hilda's College
University of Oxford

Prof Gangjee is Professor of Intellectual Property Law within the Law Faculty and a Tutorial Fellow at St Hilda's College. Prior to joining Oxford, he was a senior lecturer at the London School of Economics. Dev is a graduate of the National Law School of India and Oxford, where he was a Rhodes Scholar.

Dev's research focuses on Intellectual Property (IP), with a special emphasis on Branding and Trade Marks, Geographical Indications and Copyright law. Thematic research interests include the history and political economy of IP, collective and open innovation, the significance of registration for intangibles and rights in data. He has acted in an advisory capacity for national governments, law firms, international organisations and the European Commission on IP issues. Besides IP, Dev has teaching interests across private law, including contract, land and tort law. He has won teaching prizes (LSE) and a student welfare award (Oxford). He is a visiting professor at the Munich Intellectual Property Law Centre, having taught on their LLM programme since 2010. He has held visiting fellowships at the Institute of Intellectual Property in Tokyo (2005), the IP Research Institute of Australia at UNSW (2010) and Hong Kong University (2018). Dev is presently Director of the Oxford IP Research Centre (OIPRC). He serves on the Editorial Boards of the Modern Law Review, Queen Mary Journal of Intellectual Property and the open access journal Laws.

Andrew Farlow
Senior Research Fellow
Oxford Martin School
University of Oxford

Andrew Farlow is head of global public health initiatives, Oxford in Berlin, where he convenes the COVID-19 Science and Policy Forum. With nearly 20 years' experience researching and advising on the development, deployment, and financing of vaccines and medicines, he has advised a wide range of public- and private-sector organizations. He is Teaching Fellow of the Nuffield Department of Medicine, University of Oxford, for its MSc in International Health & Tropical Medicine, and a Senior Fellow, Oxford Martin School, where he was Co-PI on its Vaccine Design Institute.



• Edward Hadas Research Fellow Blackfriars Hall University of Oxford

Edward Hadas has worked for 45 years in Finance and Finance journalism, and has now put that experience to work in multiple research fields, from social sciences research to the philosophy of economics, and he is currently writing a new book on narratives of modernity.

• Prof Keith Hawkins Emeritus Professor of Law and Society Oriel College University of Oxford

Keith Hawkins (LL.B Birm., Dipl Criminol., MA, PhD Cantab.) retired from active teaching in October 2006. His research interests are in the sociology of legal processes, and are concerned with legal decision making and the workings of governmental regulation in such areas as environmental control, and occupational health and safety regulations.

 Prof Emilio Martínez-Pañeda Associate Professor of Engineering Science Fellow of Harris Manchester College

Prof Martínez-Pañeda was previously a Reader (Associate Professor) at Imperial College London, where he led an interdisciplinary research group from 2019 to 2023 (2019: Lecturer, 2021: Senior Lecturer, 2023: Reader). Before joining Imperial, he was an 1851 Research Fellow at the University of Cambridge and a Junior Research Fellow at Cambridge's Wolfson College. Prof Martínez-Pañeda's research spans a wide range of challenges lying at the interface between mechanics and other disciplines, such as materials science, geology, chemistry, biology, and structural engineering. He combines experiments, theory and computer simulations to develop mechanistic models that can reliably capture material deformation and fracture.

His recent focus has been on addressing fundamental scientific challenges that can accelerate our transition to a net-zero carbon society and assist in tackling our energy and climate crises. Examples include (i) understanding metal-hydrogen interactions to safely deploy hydrogen energy infrastructure, (ii) developing mechanistic corrosion-fatigue models to extend the service life of offshore wind turbines, (iii) designing new microstructures to enhance Li-Ion battery durability and performance, and (iv) developing physically-based models for predicting iceberg calving and improve sea-level rise projections. These efforts have been supported by various funding schemes such as such as the ERC Starting Grant programme, the UKRI Future Leaders Fellowship programme, the EPSRC New Investigator Award, and Innovate UK; Prof Emilio Martínez-Pañeda has been the PI on over £5M of funding in the past five years (+£22M as co-I).



Prof Martínez-Pañeda's research has been recognised with several awards including the 2021 UK Young Engineer of the Year (Royal Academy of Engineering), the 2022 Imperial College President's Medal for Excellence in Research (Early Career), the 2021 Gustavo Colonnetti Medal (RILEM), the 2020 IMechE Prestige Award, the 2020 Simo Prize (SEMNI), and the 2023 Young Investigator Medal by Spain's Royal Academy of Engineering. In 2021, he was elected a Fellow of the Institute of Materials, Minerals and Mining (FIMMM).

• Dr Robert Pitkethly Official Fellow and Tutor of Management St Peter's College University of Oxford

Dr Robert Pitkethly, MBA INSEAD, MA DPhil Oxf, MSc Stirling, has taught in Oxford on Introduction to Management courses as well as Strategic Management and Management of Intellectual Property. He has been a visiting fellow at the Institute of Intellectual Property and the National Institute of Science and Technology Policy in Tokyo, a research fellow of Cambridge University's Judge Institute of Management Studies, a member of the University of Oxford's Intellectual Property Advisory Group as well as tutor in management at St Peter's College, Oxford. He has also worked both as a Patent Attorney and as a Management Consultant with a wide range of industries. He is a Fellow of the Chartered Institute of Patent Attorneys, His current research interests bridge the fields of strategic management and intellectual property and include managerial and historical aspects of intellectual property policy.

• Prof Richard Smethurst

Emeritus Provost of Worcester College Emeritus Director of Continuing Education Honorary Fellow of St Edmund Hall

Richard Smethurst was Provost of Worcester College, Oxford, from 1991 until his retirement in 2011, and before that Director of the University's Department for Continuing Education (1976–1986). He spent a period as a Deputy Chairman of the Monopolies and Mergers Commission (MMC) and has worked as an economist in HM Treasury and in the No 10 Policy Unit. He is a life-long advocate for adult education.

Prof Nir Vulkan
Associate Professor of Business Economics
Said Business School
University of Oxford

Nir is a leading authority on fin tech, e-commerce and market design, and on applied research and teaching on hedge funds. Alongside his role at Saïd Business School, Nir is also a Fellow of Worcester College and a member of the Oxford Man Institute for Quantitative Finance. In 2003 Nir wrote one of the leading texts on the microeconomics of e-commerce The Economics of E-Commerce: A Strategic Guide to Understanding and Designing the Online Marketplace. In



2013, Nir edited, with Al Roth and Zvika Neeman, The Handbook of Market Design. The handbook contains a selection of the latest research in the growing field of market design, and draws on Vulkan's interest and expertise in markets, both virtual and those confined to particular geographical locations. He is particularly interested in how lessons from successful and unsuccessful markets can be learned and transferred to different environments. Part of the book examines issues raised by the fact that the internet is now the preferred platform for most markets, and the wide choice this gives consumers. He also examines markets linked to geography where participants have little choice.

More recently in 2020 Nir Chaired the Banking and Finance Committee on Ethical AI, which made recommendations to the European President and Parliament. Nir was also a member of the Insurance Committee on Ethical AI.

Nir has a BSc in Mathematics and Computer Science from Tel Aviv University and gained a doctorate in Economics at University College, London, where he was awarded the Dean Scholarship for excellence in PhD studies. He became a Lecturer at Bristol University in 1997, and in 2001 moved to Saïd Business School. He was the Executive Director of the Oxford Centre for Entrepreneurship between 2009 and 2011 and the co-founder and Director of OxLab, a laboratory for social science experiments, both at Saïd Business School.

7. Academic Workload

Academic workload per week (in total 60 academic hours):

- 16 academic hours: 4 hours of teaching on Monday, Tuesday, Wednesday and Thursday of each week
- 4 academic hours: review, assessment preparation and assessment on Friday of each week
- 14 academic hours: independent study, including assessment preparation
- 2 academic hours: assessment on Friday of each week
- 6 academic hours: 3 evening seminars and workshops per week
- 18 academic hours: cultural immersion activities
- Total: the workload of each week is equivalent to 3 ECTS credits

8. Extracurricular Activities and Farewell Dinner

Extracurricular activities

The tuition fee for each two-week programme includes the following Oxford and English cultural activities:

- Oxford City walking tour
- Visit to college library
- Visit to the Oxford University Bodleian Library



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- Visit to one or more of the three historic towers (St Mary's Church Tower, Saxon Tower, Carfax Tower)
- Visit to Oxford Museums (Ashmolean Museum, Museum of Natural History or Museum of History of Science)
- A one day-excursion to Cambridge
- Visit to the Oxford Botanic Garden
- Visit to the Oxford Castle
- Evensong in Christ Church College
- More activities tbc

Farewell dinner

The tuition fee includes a farewell dinner or lunch.

9. Assessment

As part of each course, an assessment will be offered by the teaching academic.

10. Certification

Certificate of Attendance and Achievement

Students will receive a Certificate of Attendance and Achievement issued by Worcester College (University of Oxford).

Academic transcript

Students who successfully finish the programme will receive an academic transcript with a summary of the programme content and academic performance issued by Worcester College (University of Oxford).

11. Participants

Worcester College invites undergraduate and postgraduate students interested in the offered courses to apply for participation in the Oxford Certificate Programme at Worcester College (University of Oxford).

Target Participants:

Maximum number of students per course:

university students aged 18+ 30-40

12. Financials

The Tuition Fees are calculated per student, per session (each student would be charged for each subscribed course).



Tuition, Room & Breakfast: Twin room occupancy (13 nights):
Tuition, Room & Breakfast: Single room occupancy (13 nights):
4,330 GBP
4,430 GBP

13. How to Apply

To apply, simply follow these steps:

1.Send an email to **enquiries.cpc@worc.ox.ac.uk** and indicate your interest to enrol in the Oxford Certificate Programme at Worcester College offered for University students in 2025

2. The Certificate Programmes team of Worcester College will respond with any further details we need from you

3. After your application has been fully added to the system of Worcester College, you can arrange payment, and then we will keep you fully updated on everything you need to know with a series of onboarding emails as the programme approaches.