



## Oxford Prospects Online Programme



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Academic Lectures

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Madg'e



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Module A

- -

Downton Abbey

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Module E





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# Module C



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# Module C



# STEM

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# Module E



Interactive Seminars

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Lecture

Seminar

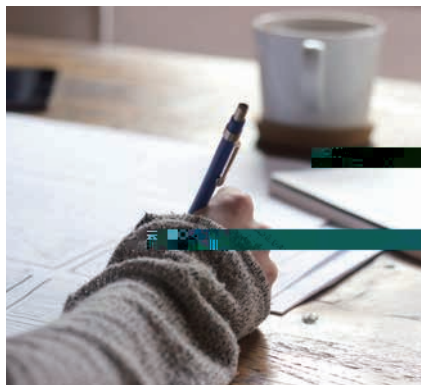
Hardcore

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Outreach Workshops

5



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”

科学的世界仍笼罩着迷雾，  
需要我们潜心钻研的问题还有  
很多

”

*'No silly questions'*

--

”

教会了我以批判性的思维方式  
看待所有问题

”

--

”

各学科的前瞻性开拓了我的眼界

”

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”

课程中最大的收获，  
是对于知识获取及思考方式的  
转变

”

--

”

我真实的感受到了什么是  
跨学科学习

”

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”

为我打开了学术的新世界

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毕业典礼的云烟火感动而又惊喜

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*session*

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# Guest Lectures

## Film and TV Industry

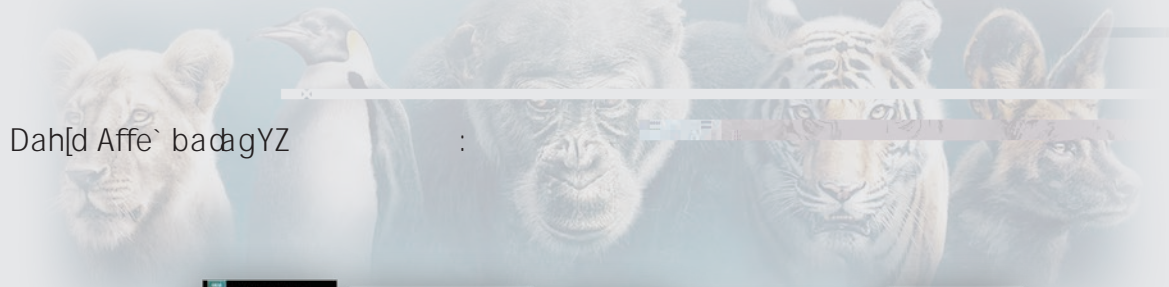


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## World Leading Enterprises



## British Nature Documentaries



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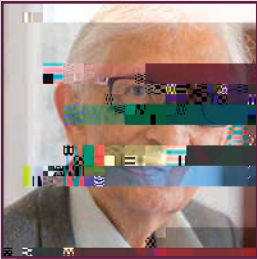




Lead Professors

Madgê

Professor Sir Richard Sorabji



Professor Graham Richards



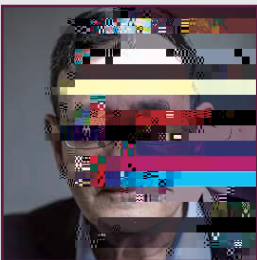
Professor Duncan Gallie



Professor Sir Mike Brady



Professor Avner Offer



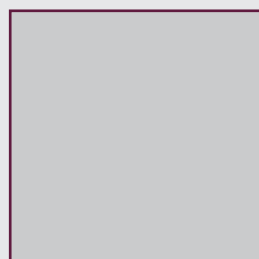
Professor Brian Cantor



Professor Sir Walter Bodmer



Professor Dame Frances Ashcroft



# Syllabus

## Module A

Politics-Economics-Philosophy-Law

- - -

### Proposed Topics

- Modern British Politics and Government
- Europe's Decade of Crises
- Re-engineering Social Security for the New Economy
- Globalisation Trends in the Context of Covid-19
- The Social Consequences of Unemployment
- The Economic Vote: How Political and Economic Institutions Condition Election Results
- Youth Unemployment During a Pandemic
- Global Geopolitics
- Understanding the UK's productivity puzzle
- Precedent in Legal Reasoning
- Human Right to Health
- Moral Philosophy, and Practical Ethics

### This course is for students of:

Social Sciences and, in particular, fields related to: Politics and Administration, International Relations, Philosophy, Sociology, Economics and Trade, Law, Journalism, etc.

### Module Description

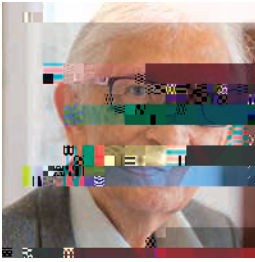
Do we all have the right to health? Does economy influence the way people vote? What characteristics should a leader in times of crisis have?

During this programme, students will appreciate our strong focus on philosophy, politics and international economics enriched by some insight into legal systems. Examining the implications of decision-making, the consequences of competitive market economy and changes in social order, students will have the opportunity to explore a wide range of interdependent topics that shape contemporary world. Learning from and engaging with leading Oxford academics, this course will equip students with theoretical and methodological tools and expertise to engage systematically with political and economic questions in a broader international context.

### Learning Outcomes:

- Understand the intricacies of UK and global politics for international relations, employment, poverty and inequality.
- Gain insight into how ancient stoic philosophy is still relevant today and how it relates to practical ethics.
- Have an understanding of international economy in the perspective of employment and social development.
- Be introduced to different types of research in social sciences.
- Comprehend the link between theory and practice in legal systems and global geopolitics.

**Proposed List of Lecturers (Partial)**



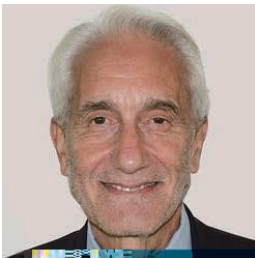
**Prof. Sir Richard Sorabji**

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**Prof. Duncan Gallie**

Fe^ai aXBdf[eZ Acade\_ k, Ca\_\_ a` dedaXfZe Bdff[eZ E\_ b[de, Fe^ai aX Ngf e`d Ca ^eYe, PdaXeeadaXSac[a^aYk [ fZe U` [hedb[fk aXOj Xadl. He Zae adh[eed fZe Fde` cZ Yahed \_ e` faea \_ e\_ bedaXa` ej bedf Ydagb a` bekcZaeac[a^de] eafi ad]. He eedhed aeV[ce-Pde[de` f Sac[a^Sc[e` cee a` d fZe` aeFad[ Y` Secdefack a` d V[ce Pde[de` f aXfZe Bdff[eZ Acade\_ k.



**Prof. Paul Craig**

E\_ edfgePdaXeeadaXE` Y^feZ Lai , Fe^ai aXfZe Bdff[eZ Acade\_ k. He i ae abba[ fed a` Za` adck Ogee` 'eCag` ee^PdaXeeadCda[Y daee\_ aef aX Z[e feacZ [ Y a` d deead:Z [ Ca` ef[fgf[a` a^a` d Ad\_ [ [efdaf]he Lai , a` d Egdabea` Ca\_ \_ g` [fk Lai a` d [ecgde` f^k e` YaYed [ a bda^ecfi Z[cZ bd] Ye a^aXfZeee egb^ecfe faYefZed



**Prof. Avner Of er**

Fe^ai aXfZe Bdff[eZ Acade\_ k, E\_ edfgeFe^ai aXA^Sag^eCa ^eYe. He Zae bgb ^feZed a` [ fed af[a` a^ba ^f[ca^eca` a\_ k, ^ai , fZe F[def Wad^d Wad a` d ^a` d fe` gde. PdaXeeadAh` edefgd[ee fZe adY [ e, affd[bgfee, a` d dd[hedaX \_ ad] ef ^bedh [e\_ , [fe egccee, Xa [gde, a` d bdaebecfe. Cgde` f^k Ze [e efgdk [ Y fZe fda` e[fa` Xa\_ Sac[a^De\_ acdck fa Mad] ef L[bedh [e\_ .



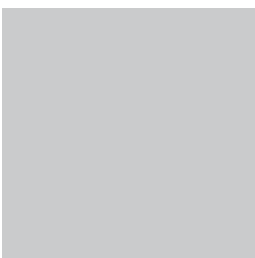
**Prof. David Rueda**

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**Prof. Jonathan Wolf**

B^ahaf [ CZa[d [ Pgb ^ck Pa ^ck a` d Gahed [ Y Badk Fe^ai af Wa ^ea` Ca ^eYe. Fad\_ edk PdaXeeadaXPZ[aeabZk a` d Dea` aXAdfe a` d Hg\_ a` [f[ee af UCL. He Zae bee` a` ej fed a^\_ e\_ bedaXfZe Baadl aXSc[e` ce aXfZe Bdff[eZ Med[ca^Aeeac[af[a` . H[edece` fi ad] Zae ^ad^e^k ca` ced ed ecga ^fk, d[eadha` faYe, eac[a^gef[ce a` d bahedfk.



**Prof. Micheal Freedon**

E\_ edfgePdaXeeadaXPa ^f[ce. S[dlea[aZ Bedf` Pd] e XadL[Xef\_ e Ca` fd]bgf[a` fa Pa ^f[ca ^Sfgd[ee bk fZe UK Pa ^f[ca ^Sfgd[ee Aeeac[af[a` . Fe^ai aXfZe Acade\_ k aXSac[a^Sc[e` cee. H[e\_ a [ fedef [e [ fZe efgdk aXacfga^ ba ^f[ca ^fZ [ ] [ Y af had]age ^he^e aXad[cg^af[a` .

# Syllabus

## Module B

Literature, Language, Digital Culture  
and Communication

### Module Description

Ever wondered what happens behind the scenes of the most successful British show worldwide of all time - Downton Abbey? Could reading classics be a way of understanding and clarifying our own thinking? Is digital culture changing and shaping our perception?

When we read, we are making sense not just of the words on the page but of the ideas being communicated to us. In this forward-thinking course, students are going to focus on the underlying messages of various media of communication across cultures. From Shakespearean tragedies and Charlotte Brontë's novels analysed and critically examined from academic as well as performing arts angles, through film experts to digital media and society, students will have the opportunity to engage with the latest research in literature, language and intercultural communication.

### Learning Outcomes:

- Understand the different approach to literary analysis in the West.
- Have experience in critical analysis of literary texts and visual arts using different theoretical approaches.
- Look in detail at canonical texts by Shakespeare and Charlotte Brontë in their original context.
- Gain insight into cultural appropriation and representations of China in English literature.
- Become familiar with the major trends in digital cultures, modern scholarship and interdisciplinary studies
- Become acquainted with and aware of varying aspects of intercultural communication and changes in journalism.

### Proposed Topics

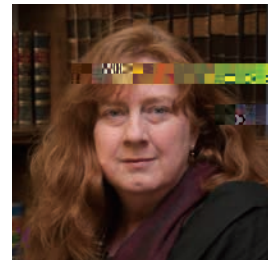
- Representations of China in Eighteenth-Century English Literature
- Intricate Workings behind the Scenes of Downton Abbey
- The Changing Face of Journalism (in the West)
- Creative Multilingualism
- The Language of 'Romeo and Juliet'
- The Gilded Stage: A Social and Cultural History of Opera
- How Language Encodes Time
- Teaching with digital objects in the Humanities
- Online Social Networks
- Disinformation by Design
- Ways of Seeing: Interdisciplinarity in the Arts

### This course is for students of:

English Language and Literature, Foreign Languages, Linguistics, Journalism, Translation, Chinese Language and Literature, Sociology, Anthropology, History, Drama, Film and Television, Media Studies, Arts, Cross-cultural Communication, Library Studies, Humanities and Education, etc.

### Prof. Ros Ballaster

PdaXeadaX18fZ Ce` fgdk Sfgd[ee a` d Lecfgd[ fZe Facg`fk aXE` Y`feZ a` d Tgfada`Fe`ai af Ma` ef e`d Ca`eYe. PdaXeadaBa`afedi ae a V[e[f` Y`Fe`ai fa fZe Debadf\_ e` faXE` Y`feZ a` d A\_ ed[ca` L[feadfgd af Hadhad U` [hed[fk. Hed \_ a[ dbeadZ adae e` ca\_ baee ehe` fee` fZ-a` d e[YZfee` fZ-ce` fgdk cg`fgd; ad[e` fa`f cf[a` ; [daeaXcaY` [f[a` a` d cZadcfed[ `f`fedck a` d fZeafd[ca` ddbdbee` faf[a` .



### Dr Michelle Castelletti

Fe`ai aXfZe Raka`Sac[efk aXAdfe, ca` dgcfad ca\_ baeeda` d D[decfadaXO] Xadl Feef[ha`aXfZe Adfe. AXfed`eah[ Y`Zedbaef ae \_ ge[c `ecfgdada` d ca` dgcfadaf g` [hed[fk, ae i e`ae fZe d[ ` [ Y`aXSag` de Nei Ca` fe\_ badck Mge[c Feef[ha` [ Ca` fedgdk, M[cZe`e beca\_ e fZe Ad[ef[c D[decfadaXfZe Raka`NadfZed Ca`eYe aXMge[c, aebafZ a` Adfe Ce` fdb, a` d aea Ca` eedhafa[d.



### Ms Liz Trubridge

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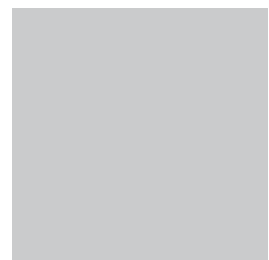
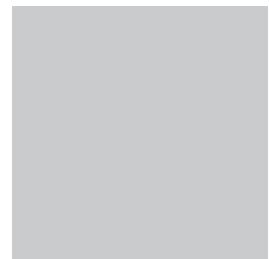
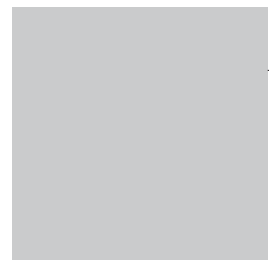
### Major General Alastair Bruce of Crionaich

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### Dr Clare Morgan

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# Syllabus

## Module C

### Medical and Life Sciences

## Proposed Topics

- Social Determinants of Health
- NHS Systems in Various Countries: The United States and Germany
- Omics Tools and Techniques Used in Translational Research
- Development of Oncological Imaging
- Haematopoiesis: From Normal to the Disease State
- Macrophage & Anti-microbial Activity
- Computer-Aided Drug Design
- Drug Development and Clinical Trials
- Cell biology: Evolutionary Perspectives on Cancer and Ageing
- Neurodegenerative Diseases: The Coming Epidemic
- Biomedical Engineering: Tissue Reconstruction and Angiogenesis
- Deep Brain Stimulation and testing Development in Parkinson's Disease
- Ethics in and for Healthcare Markets

### This course is for students of:

Medicine, Biology, Chemistry, Life and Biosciences, Genetics, Psychology, Public Health, and other related fields.

## Module Description

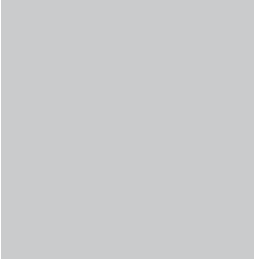
Why do people get cancer? What happens to the brain when we get older? What is checkpoint therapy? Can stem cells be used to cure any disease? Is biodiversity really so important?

This module provides an insight into the hottest topics in medicine, health related subjects as well as environment. The greatest brains in the field will guide the students through the intricacies of medical and biological research, paying particular attention to the latest technology developments in gene-editing and oncological imaging. Students will investigate the processes involved in neurodegenerative diseases and oncology as well as will analyse the steps necessary in clinical trials and drug development. The course offers a preview of how interdisciplinary teams are the only way to advance biosciences and offers a comprehensive framework in translational medicine. Students will also examine various models of healthcare systems, discuss ethical issues related to bio/medical research matters and will analyse the complex interrelationships between humans, resource use, and natural environment, including cause/effect relationships and placing the issues within wider debates on sustainability.

### Learning Outcomes:

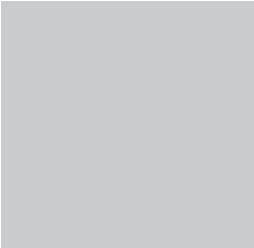
- Develop understanding of the state-of-the-art tools and techniques in bio/medical research.
- Appreciate the importance of interdisciplinary teams in cutting-edge developments.
- Explore the ethical and regulatory issues in research.
- Understand the complexities of cancer research and neurodegenerative diseases.
- Have insight into the role of nanotechnology in bio/medical applications such as vaccinations, drug delivery or cell cultures.
- Investigate latest changes in population ageing and its impact on societies.

## Proposed List of Lecturers (Partial)



### Prof. Graham Richards

Fe<sup>ai</sup> aXfZe Raka<sup>Sac</sup>[efk, F[dəf CZa[d\_ a` aXCZe\_ [efk af fZe U` [hedf[k aX Oj Xad. He a`ea Xag` ded Oj Xad Ma`ecg`ad a ec[e` f[f c eaXi adē ca\_ ba` k fZaf af [febea] i ae i adf s450\_ a` d Ze`bed eef gb Oj Xad U` [hedf[k i` ` ahaf[a` , Oj Xad`e fecZ` a`aYk fd` e`edca\_ ba` k fZaf ZaebdagYZf abbdaj [ \_afe`k 60 eb[ -agf ca\_ ba` [ee[ fa ej [efe` ce.



### Prof. Sir Mke Brady

Fe<sup>ai</sup> aXfZe Raka<sup>Sac</sup>[efk, Fe<sup>ai</sup> aXfZe Raka<sup>Acade</sup>\_ k aXE` Y[ eed` Y, Fe<sup>ai</sup> aXfZe Acade\_ k aXMed[ca<sup>Sc</sup>e` cee, PdaXeead[ fZe Debadf\_ e` f aX O` ca`aYk. PdaXeeadBdadk i ae Debgfk CZa[d\_ a` aXOj Xad i` efdj\_ e` fe b`c Xa\_ 1994 fa 2014. He i ae ai added fZe Faddak Meda`XadfZe kead2000, a` d a TZ[d M[`e` ` [g\_ \_ eda`aXfZe IEEE.



### Prof. Sir Walter Bodmer

Fe<sup>ai</sup> aXfZe Raka<sup>Sac</sup>[efk, Ha` adak Fe<sup>ai</sup> e aXfZe Raka<sup>Sac</sup>[efk aX CZe\_ [efk, Fe<sup>ai</sup> aXfZe Acade\_ k aXMed[ca<sup>Sc</sup>e` cee, PdaXeeadaXGe` ef[ce [ fZe Debadf\_ e` f aXO` ca`aYk (Med[ca<sup>Sc</sup>e` cee D[h[e[a` ) af fZe U` [hedf[k aXOj Xad, a` d Head aXfZe Ca` ceda` d i\_ \_ g` aYe` ef[ce Labadafack af fZe MRC WeafZeda`i` ef[fgfe aXMa`ecg`adMed[c[ e, Oj Xad.



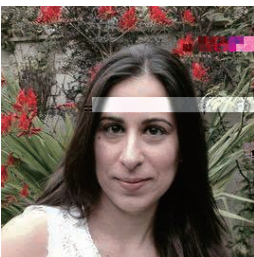
### Prof. Sonia Antoranz Contera

PdaXeead[a`Fe<sup>ai</sup> aXGde` Te\_ b`efa` Ca`eYe, a` d a PdaXeeadaXB[a`aY[ca` PZke[ce af fZe U` [hedf[k aXOj Xad PZke[ce Debadf\_ e` f. Hedi ad] `fee af fZe [ fedace aXbZke[ce, b[a`aYk, a` d` a` afecZ` a`aYk. SZe i aefZe Xag` ded d[decfada` d ca-d[decfadaXfZe Oj Xad Madf[ i` ef[fgfe aXNa` aec[e` ce Xad Med[c[ e af fZe Oj Xad Madf[ ScZaa`



### Prof. Paul Fairchild

Fe<sup>ai</sup> aXTd[ [fk Ca`eYe, Ca-D[decfadaXfZe Oj Xad Sfe\_ Ce`i` ef[fgfe. H[e cgde` f deeadZ dhai ea` Z[e bac] Ydag` d [ [ \_ \_ g` a`aYk a` d [ fedef [ efe\_ ce`e fa dehe`ab` ei abbdacZee fa fZe fdaaf\_ e` f aXa bbad da` Ye aX d[eeeee i [fZ a` [ \_ \_ g` a`aY[ca`bae[fe: [ deed, Z[e dece` fi ad] Zae`ed fa eehed`bafē fea` d a` -Ya[ Y c[ [ca`fda`e XadfZe fdaaf\_ e` f aXg` Y ca` ced



### Prof. Chrystalina Antoniadis

Of c[a`Fe<sup>ai</sup> aXRegbe` Ca`eYe, Aeeac[afe PdaXeeadaXNegdaec[e` ce [ fZe Ngf e`d Debadf\_ e` f aXC[ [ca`Negdaec[e` cee af fZe U` [hedf[k aXOj Xad, fZe CZa[daXfZe C[ [ca`Negdaec[e` cee Sac[efk. PdaXeeadCZdkefa` A` a` fa` [adee' [ fedef [ee[ ej a\_ [ [ Y fZe` egdb[a`aY[ca`de`af[a` eZ[b befi ee` h[ega` bedebf[a` a` d adf.



### Prof. Dame Frances Ashcroft

Da\_ e Ca\_ \_ a` dedaXfZe OdtledaXfZe Bd[f[eZ E\_ b[de, Fe<sup>ai</sup> aXfZe Raka<sup>Sac</sup>[efk, Fe<sup>ai</sup> aXfZe Acade\_ k aXMed[ca<sup>Sc</sup>e` cee, ReeeadZ PdaXeead[ fZe Debadf\_ e` f aXPZke[a`aYk, A` afa\_ k a` d Ge` ef[ce af fZe U` [hedf[k aXOj Xad, PdaXeead[a`Fe<sup>ai</sup> aXTd[ [fk Ca`eYe, U` [hedf[k aXOj Xad. HeddeeadZ Xacgeea` ATP-ee` e[f[he bafae[g\_ (KATP) cZa` ` e`e.

# Syllabus

## Module D

### Business, Finance and Management

#### Module Description

Have you ever wondered how much a company is worth? Are interactions more important than processes? Can we live without money?

This module is for students interested in understanding the impact of business on our globalised world. Sustainable accounting, digital transformation, quantitative economics, game theory, cryptocurrency, innovation, labour markets, political economy of international business and the challenges posed by multi-level systems will stimulate students to critically reflect on the surrounding world, market mechanisms, policy options, innovation as well as global leadership and entrepreneurship in the 21st century.

#### Learning Outcomes:

- Improve understanding of macroeconomic process.
- Become aware of design thinking steps.
- Be able to identify latest fintech tools.
- Gain insight into foundations of financial stability policies.
- Master the most common game theory strategies.
- Be able to discuss the complexities of executive compensation.

#### Proposed Topics

- The British Economy - Yesterday, Today, Tomorrow
- Business in Post-Covid World
- Applications of Game Theory to Real World
- Risk Management
- Financial Crisis: Causes and Policy Issues
- Startups and the Macroeconomy in a Pandemic
- A Proposal for Central Bank Digital Currency
- Sustainable Accounting
- Management Concepts: Design Thinking and Agile Management
- Digital Finances and FinTech

#### This course is for students of:

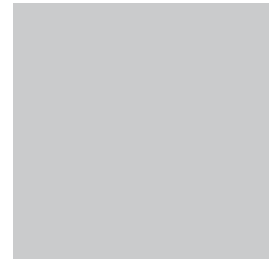
Business, Economy, Finance, Accounting, Business and Public Administration, International Trade, Management, Marketing, other related fields and for students with strong interest in business matters.



## Proposed List of Lecturers (Partial)

### Prof. Duncan Gallie

Fe^ai aXBdf[eZ Acade\_ k, Ca\_\_ a` dedaXfZe Bdf[eZ E\_\_ b[de, Fe^ai aXNgf e`d Ca^eYe, PdaXeeadaXSac[a^aYk [ fZe U` [hed[fk aXOj Xad. He Zae adh[eed fZe Fde` cZ Yahed \_ e` faea \_ e\_ bedaXa` ej bedf Ydagb a` bekcZaeac[a^d[e] eaf i ad]. He eedhed aeV[ce-Pdbee[de` f Sac[a^Sc[e` cee a` d fZe` aeFad[Y` Secd[efad a` d V[ce Pdbee[de` f aXfZe Bdf[eZ Acade\_ k.



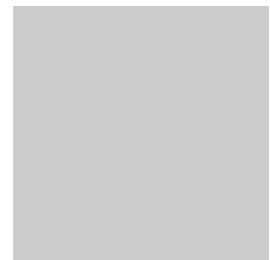
### Prof. Avner Of er

Fe^ai aXfZe Bdf[eZ Acade\_ k, E\_\_ edfgeFe^ai aXA^Sag`eCa^eYe. He Zae bgb[feZed a` [ fed` af[a` a`ba`f[ca^eca` a\_\_ k, `ai , fZe F[deF Wad`d Wad a` d `a` d fe` gde. PdaXeeadaH` edefgd[ee fZe adY]` e, affd[bgfee, a` d dd[hede aX\_ ad] ef [bede` fe\_ , [feegccee, Xa[gdde, a` d bdebecfe. Cgde` f`k Ze [efgdk] Y fZe fda` e[f[a` Xa\_ Sac[a^De\_ accdack fa Mad] ef L[bede` fe\_ .



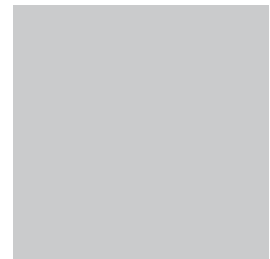
### Prof. Chris Rowley

V[e[f[ Y PdaXeeadaf Ke^aYY Ca^eYe, a` d a\_\_ e\_ bedaXfZe Ca^eYe'eCe` fde XadMgfga^a` d E\_\_ b`akee-ai ` ed Bge[` eee. He [ea i e^] ` ai ` fYgde [ Ae[a` bge[` eee a` d \_ a` aYe\_ e` f eecfae. H[e adbae aXe] bedf[ee [ c`gde cg`fgda` ai ad` eee, d[hede[fk, `eadedeZ[b, ]` ai `edYe\_\_ a` aYe\_ e` f, a` d e\_\_ b`ak\_ e` f, a` d Zg\_ a` deagde \_ a` aYe\_ e` f ba`ck.



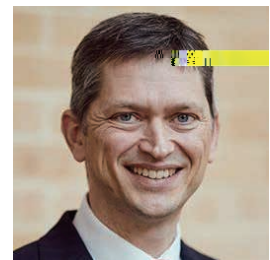
### Prof. Petr Sedlacek

PdaXeeada` d Tgfa[d]` Eca` a\_\_ [ce af CZd[ef CZgdZ Ca^eYe, a` d a ReeedZ Fe^ai af fZe Ce` fde XadEca` a\_\_ [c Pa`ck ReeedZ. PdaXeeadaSed`ace] [ea`ea Pd` c[ba`l` heef[YafadXadfZe E` fdebd` egde, F[d\_ ea` d fZe Macdeca` a\_\_ k deeedZ bde`ef, Xadi Z[cZ Ze Zae bee` ai adled a Sfad[ Y Gde` f aXfZe Egdabea` ReeedZ Cag` c[.



### Prof. Richard Barker

PdaXeeadaXAccag` f[ Y af fZe Sa[d] Bge[` eee ScZaa^ He Zae edgcaf[a` Xa\_ bafZ fZe U` [hed[fk aXOj Xad a` d U` [hed[fk aXCa\_ bd[dYe, a` d Ze cga`f ed aea cZadefed \_ a` aYe\_ e` f accag` fa` fi Z[`e i ad] [ Y XadAefdaZe` eca. He [efZe acade\_ [c\_\_ e\_ bedaXfZe Cadadafe Rebad[ Y Cag` c[; i Z[cZ eefe UK accag` f[ Y efa` dadle.



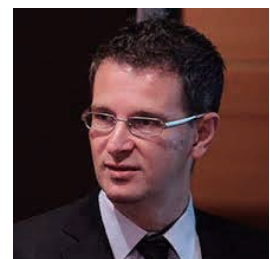
### Alan Giles OBE

Aeeac[afe Fe^ai af fZe Sa[d] Bge[` eee ScZaa^ U` [hed[fk aXOj Xad, CZa[d\_ a` aX fZe Adh[eadk Baad aXfZe Oj Xad l` ef[fgfe XadRefa[Ma` aYe\_ e` f, Na` -ej ecgf[he d[decfadaXfZe Ca\_ bef[f[a` a` d Mad] efe AgfZadfk, CZa[d\_ a` aXFaf Face, CZ[eX Ej ecgf[he aXHMV Gdagb. A`a` Zae fagYZf a` fZe Oj Xad MBA bdaYda\_\_ e af Sa[d] Bge[` eee ScZaa^.



### Prof. Andrea Ferrero

PdaXeead[ fZe Debad\_ e` f aXEca` a\_\_ [ce af fZe U` [hed[fk aXOj Xad a` d fZe Leh[ e Fe^ai [ Eca` a\_\_ [ce af Td[ [fk Ca^eYe, i Zede Ze feacZee g` dedYadgafe a` d Yadgafe \_ acdeca` a\_\_ [ce. He [ecgde` f`k a` acade\_ [c ca` eg`fa` f XadfZe Ba` ] aXE` Y`a` d a` d i aea ca` eg`fa` f fZe Nad`ee Ba` ] befi ee` 2014 a` d 2016.



# Syllabus

## Module E

STEM: Maths, Physics, Computer  
Science and Engineering

STEM - - -

### Proposed Topics

- Multicomponent High-entropy Materials Cantor Alloys
- Mathematical Modelling: Art of Problem Solving
- Renewable Energy for a Low-carbon Future
- Conservation laws. Noether's Theorem
- Particle Accelerators: From Making Higgs Bosons to Curing Cancer
- Human-AI Interaction: Digitalisation and Collective Action
- Transportation: Future Powertrains
- Intelligent Manufacturing of Personalised Products
- Modelling Sports Dynamics
- The Role of Big Data in a Smart City
- The Dark Side of the Force: Dark Energy and Dark Matter

### This course is for students of:

Engineering related degrees, Material Science and Technology, Physics, Mathematics, Transportation, Space Science and Technology, Computer Science, Artificial Intelligence, etc.

### Module Description

How will big data drive future smart city innovation? What is the best path to a low carbon future: solar, wind or nuclear? How will Artificial Intelligence enable rapid and stable intelligent manufacturing of personalised products?

Students will explore ways to apply creative reasoning and science to solve real problems while crossing traditional boundaries of disciplines. As disciplines converge into new hybrid fields students engage with the highest-level academicians and leading experts who invent and research the cutting-edge solutions of the modern world. This programme focuses on practical aspects of mathematical modelling, physics and engineering, asks questions about the worth of technology transfer and encourages students to find missing links between everyday phenomena..

### Learning Outcomes:

- Have the requisite knowledge and understanding to make their own critical scientific assessments of current issues.
- Develop critical thinking skills necessary for mathematical modeling.
- Develop an understanding of the scale of the Universe.
- Describe and apply the principles of Constructor Theory.
- Gain insight into quantum computing and nanotechnology for a variety of applications.
- Comprehend the historical evolution of Newtonian mechanics and its place in contemporary world as well as in the future.

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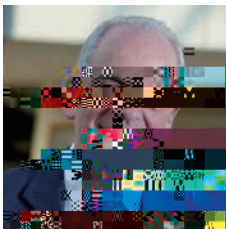
### Prof. Sir Mke Brady

Fe<sup>ai</sup> aXfZe Raka<sup>Acade</sup> k aXE<sup>Y</sup> eed<sup>Y</sup>, Fe<sup>ai</sup> aXfZe Acade<sup>Acade</sup> k aXMed[ca<sup>Sc</sup>e<sup>cee</sup>, Pda<sup>Debadf</sup> e<sup>f</sup> aXO<sup>ca</sup> aYk. Pda<sup>Debadf</sup> Bda<sup>k</sup> i aeDebgfk CZa[<sup>d</sup> a<sup>a</sup> aXOj Xad l<sup>ef</sup> e<sup>cb</sup> Xba<sup>1994</sup> fa 2014. He i aeai adled fZe Faddak Meda<sup>ad</sup> fZe kead2000, a<sup>d</sup> a TZ[<sup>cd</sup> M[<sup>e</sup> g<sup>eda</sup> aXfZe IEEE.



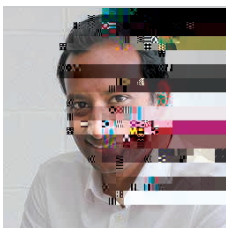
### Prof. Artur Ekert

Fe<sup>ai</sup> aXfZe Raka<sup>Sac</sup>efk, Pda<sup>Deada</sup> XQga<sup>fg</sup> PZke[ce af fZe MafZe<sup>af</sup> ca<sup>l</sup> ef[fgfe, U<sup>hed</sup>fk aXOj Xad. He i aeai adled fZe 1995 Maj i e<sup>Meda</sup> a<sup>d</sup> Pd[<sup>e</sup> bk fZe l<sup>ef</sup> fgfe aXPZke[ce, fZe 2007 HgYZee Meda<sup>bk</sup> fZe Raka<sup>Sac</sup>efk a<sup>d</sup> fZe 2019 M[c[ge Qga<sup>fg</sup> Pd[<sup>e</sup>. H[<sup>e</sup> deeadZ ej fe<sup>d</sup> ahed<sup>af</sup> aebecfe aX<sup>ad</sup> af[a<sup>b</sup> bda<sup>cee</sup> Y<sup>cga</sup> fg<sup>ec</sup> Za<sup>ca</sup> ekefe<sup>e</sup>.



### Prof. Brian Cantor

Fe<sup>ai</sup> aXfZe Raka<sup>Acade</sup> k aXE<sup>Y</sup> eed<sup>Y</sup>, Ca<sup>da</sup> XfZe Bd[fZe E<sup>b</sup> d[<sup>de</sup>. Pda<sup>Deada</sup> XMafed[<sup>a</sup> e<sup>f</sup> fZe Debadf<sup>e</sup> f aXMafed[<sup>a</sup> e, Fad<sup>ed</sup> V[ce-Pde[de<sup>f</sup> aX fZe Raka<sup>Acade</sup> k aXE<sup>Y</sup> eed<sup>Y</sup>. He i aeai adled fZe Raee<sup>Za</sup> a<sup>d</sup> P<sup>af</sup> g<sup>Meda</sup> e aXfZe l<sup>ef</sup> fgfe aXMafed[<sup>a</sup> e, M[<sup>ed</sup> e a<sup>d</sup> M[<sup>l</sup> Y. He Zae bgb<sup>Ze</sup> d ahed 300 babede<sup>a</sup> d baa<sup>e</sup>, Y[<sup>he</sup> ahed100[<sup>h</sup> fed fa<sup>e</sup> l<sup>ad</sup> fZa<sup>15</sup> cag<sup>fd</sup> ee.



### Prof. Harish Bhaskaran

Pda<sup>Deada</sup> XAbb<sup>fed</sup> Na<sup>a</sup> a<sup>afed</sup> a<sup>e</sup> fZe Debadf<sup>e</sup> f aXMafed[<sup>a</sup> e, EPSRC Fe<sup>ai</sup> l<sup>Ma</sup> g<sup>Xac</sup>fgd<sup>Y</sup>. He [e a<sup>l</sup> he<sup>fada</sup> XbZae cZa<sup>Ye</sup> bZafa<sup>c</sup> ca<sup>bgf</sup> Y a<sup>d</sup> ca<sup>f</sup> gee i ad[<sup>ef</sup> ab fZe Y fZe f e<sup>d</sup>. H[ei ad] Zae bee<sup>X</sup> a fgd e i [de<sup>k</sup> ahed fZe a<sup>ef</sup> ehed<sup>kead</sup> Sc[<sup>e</sup> ce, Nafgd, TZe Eca<sup>a</sup> [ef, MIT TecZ<sup>a</sup> aYk Reh[ei<sup>l</sup>, Fadg<sup>e</sup>, W[<sup>ed</sup>, BBC etc.



### Dr Julian Dye

Debadf<sup>e</sup> fa<sup>Ac</sup> l<sup>ec</sup>fg d e af fZe l<sup>ef</sup> fgfe aXB[a<sup>ed</sup> ca<sup>E</sup> Y<sup>eed</sup> Y (IBME), fZe D[<sup>ed</sup> fada XReeadZ l<sup>f</sup> fZe RAFT l<sup>ef</sup> fgfe. DdDke eefab<sup>Ze</sup> d a deeadZ bdaYda<sup>e</sup> fa dehe<sup>ab</sup> a<sup>ei</sup> abbdacZ fa e[<sup>d</sup> ca<sup>ef</sup> d c f[a<sup>l</sup>, [he<sup>f</sup> Y a<sup>ad</sup> f c[a<sup>e</sup>] l<sup>afed</sup> a<sup>ca</sup> ed S<sup>ad</sup> Mafdj<sup>a</sup> bda<sup>a</sup> Y[aYe<sup>c</sup> ek<sup>f</sup> z e f c ded<sup>a</sup> deb<sup>ace</sup> e<sup>f</sup>.



### Prof. Dino Sejdinovic

Pda<sup>Deada</sup> fZe Debadf<sup>e</sup> f aXSf[ef[ce, Tgd<sup>Y</sup> Fe<sup>ai</sup> aXfZe A<sup>an</sup> Tgd<sup>Y</sup> l<sup>ef</sup> fgfe. He [e bda<sup>k</sup> l<sup>fed</sup> e fed [ef[ca<sup>X</sup>g<sup>d</sup> da f[a<sup>e</sup>g<sup>d</sup> ecb<sup>l</sup> [Y<sup>ad</sup> eca<sup>e</sup> acZ[<sup>e</sup> ead [Y aYad fZ<sup>e</sup>. Pda<sup>Deada</sup> Se<sup>d</sup> ah[ca<sup>d</sup> gcf e deeadZ af fZe l<sup>fed</sup> ace befi<sup>ee</sup> acZ[<sup>e</sup> ead [Y a<sup>d</sup> ef[ef[ca<sup>ef</sup> Zada<sup>Y</sup> ki [fZ a Xacge a<sup>ed</sup> e<sup>a</sup> d<sup>a</sup> bda<sup>ef</sup> c<sup>ef</sup> Zade.



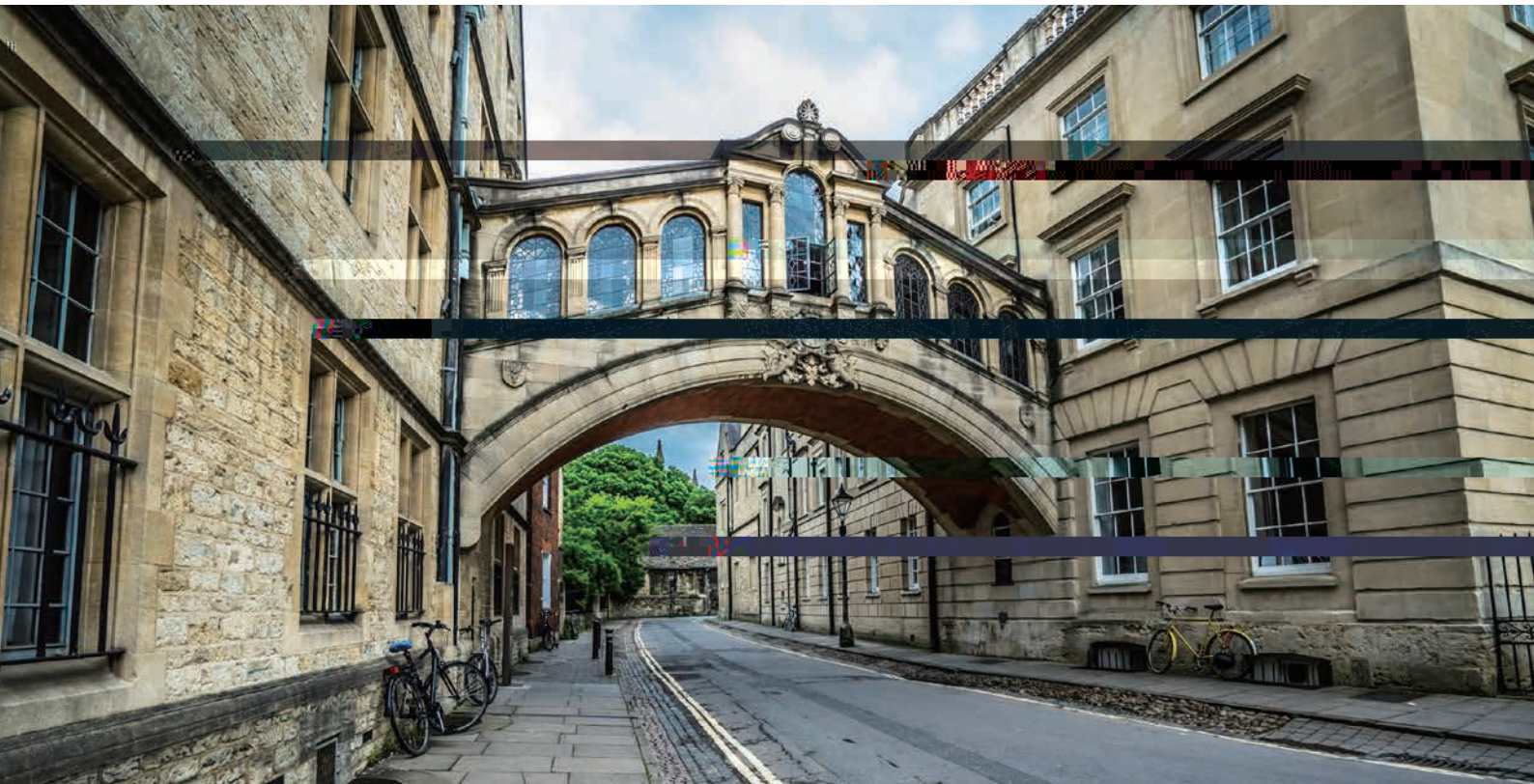
### Prof. Martin Bureau

L[<sup>de</sup> a<sup>Fe</sup> ai a<sup>d</sup> Tgfad[<sup>PZ</sup> ke[ce af WadZa<sup>Ca</sup> eYe, U<sup>hed</sup>fk aXOj Xad, a<sup>d</sup> Pda<sup>Deada</sup> Aefda<sup>B</sup> ke[ce i fZ[<sup>f</sup> fZe Debadf<sup>e</sup> f aXPZke[ce, U<sup>hed</sup>fk aX Oj Xad. He [e bad[<sup>cg</sup> adk l<sup>fed</sup> e fed [ge[<sup>Y</sup> abeechaf[a<sup>e</sup> a<sup>d</sup> fZe adf[ca<sup>ef</sup> gd[ee aX fZe Yae, efad, a<sup>d</sup> dad<sup>aff</sup> ed fZaf<sup>a</sup>] e gb Ya<sup>aj</sup> [ee fa ca<sup>ef</sup> d[<sup>f</sup> Ze[d<sup>X</sup> ad<sup>af</sup>] a<sup>d</sup> eha<sup>gf</sup> a<sup>l</sup>.



### Prof. Cameron Hepburn

Pda<sup>Deada</sup> XE<sup>h</sup> d<sup>e</sup> fa<sup>Eca</sup> a<sup>ce</sup> af fZe U<sup>hed</sup>fk aXOj Xad, D[<sup>ed</sup> fada X fZe Eca<sup>a</sup> [ce aXSgefa<sup>ab</sup> f[<sup>fk</sup> PdaYda<sup>e</sup> af fZe l<sup>ef</sup> fgfe Xad Nei<sup>Eca</sup> a<sup>c</sup> TZ[<sup>l</sup>] [Y af fZe Oj Xad Mad[<sup>Sc</sup> Zaa<sup>He</sup> [e[<sup>ha</sup> hed [ba<sup>ck</sup> Xad af[a<sup>l</sup>, adh[<sup>e</sup> Y had[age Yahed<sup>e</sup> fe, fZe UN, fZe OECD a<sup>d</sup> l<sup>fed</sup> af[a<sup>a</sup> f<sup>a</sup> c[a<sup>ef</sup>] fgf[a<sup>e</sup>, a<sup>d</sup> [e a<sup>e</sup> bedaXfZe DECC Secd<sup>fad</sup> aXSf[ef[ce Eca<sup>a</sup> [ce Adh[<sup>ead</sup> Gd<sup>gb</sup>.



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