

Cambridge Online MasterClass

剑桥名师线上公开课系列



Lecture 1 | April 02

Disruptive Innovation

Instructor Profile 教授介绍

Dr. John Hoffmire



Research Associate, University of Oxford
Carmen Porco Chair in Sustainable Business
at the Center on Business and Poverty
Senior Fellow at Peking University's HSBC Business School
President of Cadence Innova

牛津大学研究员
Carmen Porco 商业与贫困中心可持续商业主席
北京大学汇丰商学院高级研究员
Cadence Innova 总裁

Biography

John's achievements in both the academic and business worlds are extensive and - having participated in work, research and speaking tours in 99 countries - John is regarded as one of the leading experts in his field. His pioneering approach has led to achievements such as: leading the first sale of shares for a micro-finance bank to an Employee Stock Ownership Plan at K-REP in Kenya.

John is chairman of Cadence Innova, a change management consulting firm based in London. Before joining University of Oxford, John had a twenty-year career in equity investing, venture capital, consulting and investment banking. His work has had a particular focus on Employee Stock Ownership Plans. As founder and CEO of his own investment-banking firm, he helped employees buy and manage approximately \$2.2 billion worth of ESOP stock. He sold his firm to American Capital, which then went public. John left American Capital as Senior Investment Officer when the company reached \$1 billion in assets. After leaving American Capital, John was Vice President at Ampersand Ventures, formerly Paine Webber's private equity group. Earlier in his career, after he finished his PhD at Stanford University, he was a consultant at Bain & Company.

Course Introduction

This presentation will cover two aspects:

Growth and Globalization –Challenges and Opportunities, and Impact Investing for Individuals and Corporations.

To understand the future, we need to Look at the past. From the prognostications for the Global Car Market and flying, we have seen the globalization and global leadership benefits and the challenge of emerging risks .

Business has changed dramatically over the last two decades: Globalization, cross-national strategic alliances and mergers, privatizations, outsourcing, information technology innovations, and the increasing short term contract culture have all influenced this. In turn, the role of managers has had to adapt and change. The organizations they work in have changed in size and organizational structure. Our management style has had to adapt, as the workforce they manage has become more dispersed and come to live in a state of permanent job insecurity. Moreover, the demands placed on managers by change seem a prerequisite, as business continues to develop as rapidly as ever. This volume brings together the thoughts of leading figures from industry, academia, the public sector, professional bodies, and the media, to reflect on what the twenty-first century may mean for businesses and their leaders. The contributors examine what trends mark the global economy in the twenty-first century, how this will affect businesses, and what will be required in terms of leadership and management to manage effectively? In doing so the presentation and the summer leadership module will cover such topics as leadership, corporate culture, organizational structures, innovation, working life, and management education and the business school.

Impact investing is the cutting-edge tool for companies looking to achieve financial, environmental, and societal goals – all at the same time. We expect more leaders in corporations to leverage their companies' resources and competitive advantages through impact investing. In combination with the current state of globalization, what kind of leadership is needed for the challenges of the 21st century?

Lecture 2 | April 09

Nanotechnology - Size Really Does Matter



Instructor Profile 教授介绍

Dr. Colm Durkan

Reader in Nanoscale Engineering, University of Cambridge
Solid State Electronics and Nanoscale Science
Fellow of Girton College, Cambridge

剑桥大学纳米工程专业的教授
固体电子学和纳米科学
剑桥大学格顿学院教授

Biography

Colm Durkan is a Reader in Nanoscale Engineering at the University of Cambridge. He obtained his degree and PhD in Physics from Trinity College Dublin during which time he designed and constructed the first scanning near-field optical microscope (SNOM) in the country, and made significant advances in our understanding of the mechanisms behind image formation in such systems. He then spent a year in Konstanz, Germany working in collaboration with ZEISS on the construction of a commercial microscope system.

In 1997 he moved to the University of Cambridge, initially as a research associate in the Nanoscale Science group, and since 2000, as a faculty member. During this time he has led a research group consisting of around 10 members, been head of the Nanoscience centre for two years (2009-2010), published over 60 papers, given over 100 talks, written a successful textbook on Nanoelectronics, and developed several scanning-probe microscopes and new measurement techniques.

Colm has secured funding from and collaborated with several leading companies as well as government funding agencies, to the tune of over £3 Million in the past few years. He lectures and teaches in electronics, electromagnetism, quantum mechanics and nanotechnology. He is on the editorial board of Ultramicroscopy and Imaging & Microscopy, and is a fellow of Girton College, Cambridge and the Institute of Physics.

Course Introduction

This presentation will cover two aspects:

Nanotechnology is a buzz word many of us have heard but are uncertain as to what it really means. It is an area of research that generated an enormous amount of hype in the early 2000s, and since then has touched on many aspects of our everyday lives without our even realizing. It is a field that brings together aspects of physics, chemistry, biology, engineering and medicine. Although it is recognized that it was kick-started by the invention of the Scanning Tunneling Microscope (STM) in the early 1980s, there are examples of applications of nanotechnology, albeit unwittingly, going back Millenia. *Size Really Does Matter: The Nanotechnology Revolution* gives an account of the origins of the field, presented from the standpoint of fundamental science. It shows how nanotechnology is, in fact, an inevitable consequence of our desire to make ever smaller things.

How size really does matter tells the story of the development of nanotechnology starting with medieval times and the beginnings of the scientific method, to an overview of classical science and then moves onto how the discovery of quantum mechanics at the turn of the 20th century turned all of this on its head. This opens the window into the fact that small (i.e. nanometre-sized) objects behave differently to larger objects, which is the founding principle of nanotechnology. There are detailed discussions on nanomaterials and how the properties of materials can be tuned by changing their size, with plenty of everyday examples; how we explore and see nanostructures, as they are too small to see using conventional microscopes; how nanotechnology has revolutionized the electronics and semiconductor industry, how it is being used in medicine to diagnose and treat disease and finally, on the risks associated with the uncharted properties of highly-reactive nanoparticles. It is firmly rooted in fact and works to dispel the myths and unravel the truth about this branch of science and technology that has already touched many aspects of our lives.

Lecture 3 | April 16

Cambridge University: its Origins, Contribution to English Society & Relationship with China

Instructor Profile 教授介绍

Dr. Nicholas Chrimes



Author of 'Cambridge - Treasure island in the Fens' - The University & Town of Cambridge

《剑桥，沼泽中的金银岛》
剑桥大学与小镇800年
剑桥大学著名史学家

Biography

Writer/lecturer English-Chinese Culture & the History of Cambridge University. His work stretches from working at Cambridge University (Judge & Moeller Institutes) to successful private companies in China which bring students to Cambridge.

He has spent 18 months, over ten years in China. Lecturing at many top universities. His most successful book is: Cambridge - Treasure Island in the Fens 3rd Ed 剑桥：沼泽中的金银岛 1209-2009, SDX San Lian, Beijing. He has recently completed a series of 100 mini lectures about English culture and Western paintings for transmission on Chinese internet platforms this Spring.

Course Introduction

"Cambridge: Treasure Island in the Fens, the 800-year Story of the University and Town of Cambridge, 1209 to 2009" is a study of "town and gown" relations in Cambridge, a relatively understudied field. The lecture will reveal why some scholars fleeing from Oxford in 1209 settled in Cambridge and not in one of the more educationally established cathedral cities. The story of how these scholars overwhelmed what was then a prosperous trading community through various state-granted privileges is told. The pre-Reformation relationship between the University and the monasteries is explored.

Lecture 4 | April 17

UK Application -

How to Write great CVs and Personal Statements



Instructor Profile 教授介绍

Dr. Mark Perkins

PhD Linguistics

MA Linguistics, MA Classics

LTCL Teaching diploma, LRAM Clarinet diploma

语言学博士

语言学硕士，古典文学硕士

LTCL教学文凭，LRAM单簧管文凭

Biography

Mark Perkins has lived in Italy, Czechoslovakia and Sweden. He was a university lecturer and trainer in English language and/or linguistics in each country. After returning to Cambridge he started his own training company which has many clients from large corporations and government agencies. After completing his PhD, Mark decided to implement the ideas in a technology company, Repindex, which he owns. Repindex exploits patterns in big text data. Mark has hands-on experience of starting a technology company from scratch, project managing a development team in India, and doing deals. Repindex currently has two dimensions: big text data (blogs and other feeds) and legal technology (contract analysis). Mark's hobby is music. He teaches young people the clarinet and enjoys playing chamber music, such as the Mozart Clarinet Quintet.

Course Introduction

The process of applying for jobs, internships, and graduate/professional programs often requires a personal statement or application letter. This type of writing asks writers to outline their strengths confidently and concisely, which can be challenging.

Though the requirements differ from application to application, the purpose of this type of writing is to represent your goals, experiences and qualifications in the best possible light, and to demonstrate your writing ability. Your personal statement or application letter introduces you to your potential employer or program director, so it is essential that you allow yourself enough time to craft a polished piece of writing.

The Lecture will help student build up the concept of statement writing and some tips of Interview.

Lecture 5 | April 23

How Are Financial Markets Connected to the Economy?

Instructor Profile 教授介绍

Dr. Pedro Saffi



Lecturer in Finance University of Cambridge
Department: Judge Business School
Director of the Master of Finance (MFin) Programme

剑桥大学金融学院教授
剑桥大学Judge商学院
财务硕士(MFin)项目负责人

Biography

Dr. Pedro Saffi is a Lecturer at the Judge Business School (University of Cambridge, UK) and was an Assistant Professor of Finance at IESE in Spain between 2007 and 2011. He obtained his PhD in Finance from London Business School in 2007 and prior to that a MSc. in Economics from Fundação Getulio Vargas (2002) and a BA in Economics from IBMEC Business School (1999), both in Rio de Janeiro, Brazil.

His research covers topics such as security lending markets; short selling; limits to arbitrage; and asset management. He has published his work in the top Finance journals in the world, like the Journal of Finance, the Review of Financial Studies, and the JFQA. In 2012 he was awarded one the Q Group's research awards, in 2013 an award by Inquire Europe, and in 2015 the NAC & Blackrock Global Challenge for Innovation in Corporate Governance prize and one of the 2015 Crowell prizes given by PanAgora Asset Management.

His previous teaching experience includes courses for MBA, EMBA, MPhil and Executive Education students at Judge Business School, London School of Economics, IESE Business School, London Business School, Reykjavik University (Iceland), Fundação Getulio Vargas, SKKU (South Korea), Nile University (Egypt), and Myra Business School (India). In 2012 and 2015 he was awarded an Outstanding Teaching Award by the Judge Business School. He has been

appointed as the Director of the Masters in Finance (MFin) programme at the Judge Business School from September 2018 onwards.

His professional experience includes working as a consultant to Mondrian Investment Partners and as a corporate valuation expert for the United Nation's Permanent Court of Arbitration, for real estate companies and for pharmaceutical companies.

Course Introduction

The aim of the online class is to see how economic variables affect financial markets and, in particular, stock prices and interest rates. We will examine and interpret information from the Financial Times, seeing in practice what the most important economic indicators are.

We will also examine the latest economic indicators as the Covid-19 crises spread around the world, discussing Chinese economic data and how other countries are being affected.

Instructor Profile 教授介绍

Dr. Jossy Sayir



Fellow of Robinson College, Cambridge
Affiliated Lecturer and Senior Research Associate
General co-Chair of the 2016 IEEE Information Theory
Workshop in Cambridge

剑桥大学教授

Robinson 学院Fellow

2016年IEEE信息理论研讨会的联合主席

Biography

I received my engineering diploma (Dipl. El. Ing. ETH) in 1991 and doctorate (Dr. Sc. Techn.) in 1999, both from the Swiss Federal Institute of Technology in Zurich, Switzerland (ETHZ). From 1991 until 1993, I worked as a development engineer for Motorola Communications in Tel Aviv, Israel, on the design and quality assurance of a digital mobile radio system. From 1993 until 1999, I worked as a research and teaching assistant under the supervision of Prof. James L. Massey while writing my dissertation "On Coding by Probability Transformation". From 2000 until 2009, I was a senior researcher at the Telecommunications Research Center in Vienna, Austria (ftw.) and managed part of the centre's strategic research activities from 2002 until 2008.

Since June 2009, I have been with the Department of Engineering at the University of Cambridge on an Intra-European Marie Curie Fellowship that lasted until November 2011. In September 2011, I was appointed as a fixed-term lecturer in Communications and am now an affiliated lecturer at the department, a Fellow of Robinson College, and a senior member and Director of Studies at Newnham College. From 2015 to 2018, I worked partially at the European Bioinformatics Institute in a project aiming to store data on DNA. I have served on the organization and technical committees of several international conferences and workshops, notably as Technical Program co-Chair of the 2013 IEEE Symposium on Information Theory, and General co-Chair of the 2016 IEEE Information Theory Workshop in Cambridge.

Course Introduction

Every minute in 2018, Google conducted 3.88 million searches, and people watched 4.33 million videos on YouTube, sent 159,362,760 e-mails, tweeted 473,000 times and posted 49,000 photos on Instagram, according to software company Domo. By 2020 an estimated 1.7 megabytes of data will be created per second per person globally, which translates to about 418 zettabytes in a single year (418 billion one-terabyte hard drive's worth of information), assuming a world population of 7.8 billion. The magnetic or optical data-storage systems that currently hold this volume of 0s and 1s typically cannot last for more than a century, if that. Further, running data centers takes huge amounts of energy. In short, we are about to have a serious data-storage problem that will only become more severe over time.

An alternative to hard drives is progressing: DNA-based data storage. DNA—which consists of long chains of the nucleotides A, T, C and G—is life's information-storage material. Data can be stored in the sequence of these letters, turning DNA into a new form of information technology. It is already routinely sequenced (read), synthesized (written to) and accurately copied with ease. DNA is also incredibly stable, as has been demonstrated by the complete genome sequencing of a fossil horse that lived more than 500,000 years ago. And storing it does not require much energy.

But it is the storage capacity that shines. DNA can accurately stow massive amounts of data at a density far exceeding that of electronic devices. The simple bacterium *Escherichia coli*, for instance, has a storage density of about 10^{19} bits per cubic centimeter, according to calculations published in 2016 in *Nature Materials* by George Church of Harvard University and his colleagues. At that density, all the world's current storage needs for a year could be well met by a cube of DNA measuring about one meter on a side.

Lecture 7 | April 30

Western and Eastern Higher Education: What is Shared and What Separates us



Instructor Profile 教授介绍

Dr. Nicholas Chrimes

Author of 'Cambridge - Treasure island in the Fens' - The University & Town of Cambridge

《剑桥，沼泽中的金银岛》
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Biography

Writer/lecturer English-Chinese Culture & the History of Cambridge University. His work stretches from working at Cambridge University (Judge & Moeller Institutes) to successful private companies in China which bring students to Cambridge.

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Course Introduction

Western and eastern higher education course helps you to read and understand the soul and secrets of the University of Cambridge - the origins of western 'Higher education' and the keys to modern success.

This lecture will cover three aspects:

'Background to Europe's ancient Universities', 'Why Cambridge and its Character, college system, architecture' and 'The Cambridge - China relationship'.

The professor will take you into the history of ancient European universities and the development of Chinese education over thousands years.

We will understand how the University of Cambridge Works - College system. Cambridge University is comprised of 31 Colleges and over 150 departments, faculties, schools and other institutions. A College is where students live, eat and socialise and where they receive small group teaching sessions, known as supervisions - it plays a far more significant part in an undergraduate's life than a hall of residence in a non-collegiate university.

Through the description of the different educational systems in the east and the west, discover the secret of their success and their integration.

