

Cambridge University Scientific Nobel Laureates

Start date 19th January 2019**End date** 20th January 2019**Venue** Madingley Hall
Madingley
Cambridge**Tutor** Dr Vasos Pavlika**Course code** 1819NRX011**Director ISP and Lifelong
Learning**

Sarah Ormrod

**For further information on this
course, please contact**HoACA, Lifelong Learning, Zara Kuckelhaus
shortcourses@ice.cam.ac.uk or 01223 746204**To book** See: www.ice.cam.ac.uk or telephone 01223 746262

Tutor biography

Dr Vasos Pavlika is a Senior Teaching Fellow in Mathematics at University College London where he is based in the Biochemical Engineering Department. He is also a Saturday School lecturer at the London School of Economics and Political Science where he also directs a week long summer school in Mathematics to the most able year 12 students from inner city London schools and colleges. He has been a lecturer in the Department for Continuing Education, Oxford University since October 2004 delivering courses in Computer Programming, Statistics, Mathematics of Computer Games and Mathematics of Computer Science, the History of Mathematics and Mathematical Biology. Vasos is also an Online Tutor of Master's courses in Mathematical Economics at SOAS, University of London a role he has fulfilled since October 2003. Vasos has also acted as an External Examiner/Advisor for UK universities on overseas collaborations in Australia, Sri Lanka, Greece, Egypt, Malaysia and Singapore as well as for many UK institutions including City, Bournemouth, Plymouth and Lincoln universities. Vasos has taught at the Institute of Continuing Education, Cambridge since 2016.

Course programme

Saturday

Please plan to arrive between 16:30 and 18:30. You can meet other course members in the bar which opens at 18:15. Tea and coffee making facilities are available in the study bedrooms.

15:00-16:15	Session 1: The atom
16:15	Tea
16:45	Session 2: X-rays: Arthur Holly Compton and Charles Wilson
18:00 – 18:30	Free
18:30	Dinner
20:00 – 21:15	Session 3: Paul Dirac: Quantum genius and yet the strangest man
21:15	Terrace bar open for informal discussion

Sunday

07:30	Breakfast
09:30 – 10:45	Session 4: DNA: Crick, Watson and Wilkins but what about Franklin
10:45	Coffee
11:15 – 12:30	Session 5: Forces unravelled: Abdus Salam and Steven Weinberg.
12:45	Lunch
14:00 – 15:15	Session 6: Stars at Cambridge: Chandrasekhar and others

The course will disperse after lunch

Course syllabus

- The course will trace the history of the Nobel prize.
- The course will introduce the lives and work of a number of Cambridge University Nobel Laureates
- The course will introduce the scientific work carried out by these Cambridge “Giants” in a non-specialist way.
- The course will attempt to discuss the legacy of the work of some of these Nobel Laureates and their work has influenced and shaped Science.

Aims:

- The course aims to discuss the lives and work of a number of Cambridge University Nobel Laureates.
- The course aims to discuss the legacy of many of these Scientists
- The course will also attempt to discuss how these great Scientists arrived at their monumental work and to explain it.

Content:

The course will look at how influential Cambridge University has been in the advancement of Science. We will look at a selection of Nobel Laureates in the Sciences including: Ernest Rutherford, Neils Bohr, Paul Dirac, Francis Crick, James Watson, Subrahmanyam Chandrasekhar and William Fowler amongst others. Their interesting and often strange lives will be discussed along with what impact their work has had on mankind’s history as well as their own legacies.

We will look at how these Cambridge “Giants” revealed the structure of the atom, invented an equation that predicted the existence of anti-particles/matter and how classical mechanics was modified to explain spectroscopy and atomic structure leading inevitably to the development of Quantum Physics. We will also look at how these Cambridge Nobel Laureates shed light on our understanding of the processes in stars and on the structure of DNA.

Presentation of the course:

Each seminar will include a power point presentation that will assist with the presentation. On occasion video clips will be used to emphasise certain topics. These notes will be made available to the attendees.

As a result of the course, within the constraints of the time available, students should be able to:

(Please list here the outcomes of the course. The course will probably have between two and four outcomes.)

To understand and appreciate how important Cambridge University Scientists have been in developing and shaping Science.

To understand the fundamentals of the discoveries of the Cambridge University Nobel Laureates

To understand the varied economic, social and religious backgrounds of these great Scientists.

Reading and resources list

Listed below are texts that might be of interest should you wish to supplement your learning on the course. Any essential reading is marked with an asterisk *

Author	Title	Publisher and date
Born. M.	My Life, recollections of a Nobel Laureate.	Routledge, 1975
Brown.A.	The Neutron and the Bomb: A Biography of Sir James Chadwick	Oxford University press 1997
Chandrasekhar.S	Truth and Beauty: Aesthetics and Motivations in Science	University of Chicago,1987
Compton. A.	Atomic Quest, a Personal Narrative	Oxford University press 1956
Duff. J.	Memorial Volume on Abdus Salam's 90th Birthday	World Scientific 1945
Farmelo.G.	The Strangest Man: The hidden Life of Paul Dirac, Quantum Genius	Faber & Faber 2009
Moore.R.	Niels Bohr: The Man, His Science, and the World They Changed	MIT press, 1985
Reeves. R.	A Force of Nature: The Frontier Genius of Ernest Rutherford.	Atlas & Co, 2008
Sayre. A	Rosalind Franklin and DNA	Paw Prints, 2008
Strathern.P.	Crick, Watson and DNA: The Big Idea.	Anchor, 1997
Thomson. G.P.	J.J. Thomson, Discoverer of the Electron	Anchor books, 1966
Weinberg. S.	To Explain the World: The Discovery of Modern Science	Harper Collins 2015

Website addresses

Note Students of the Institute of Continuing Education are entitled to 20% discount on books published by Cambridge University Press (CUP) which are purchased at the Press bookshop, 1 Trinity Street, Cambridge (Mon-Sat 9am – 5:30pm, Sun 11am – 5pm). A letter or email confirming acceptance on to a current Institute course should be taken as evidence of enrolment.

Information correct as of: 18 December 2018