UNIVERSITY OF CAMBRIDGE

Institute of Continuing Education

Renaissance arts and sciences

Start date	06 September 2019	**End date**	08 September 2019
Venue	Madingley Hall Madingley Cambridge CB23 8AQ		
Tutor	Piers Bursill-Hall	**Course code**	1920NRX002

Director of ISP and LL	Sarah Ormrod
For further information on this course, please contact the Lifelong Learning team	Zara Kuckelhaus, Fleur Kerrecoe shortcourses@ice.cam.ac.uk or 01223 764637
To book	See: www.ice.cam.ac.uk or telephone 01223 746262

Tutor biography

Dr Piers Bursill-Hall is an academic in the Cambridge University Faculty of Mathematics who lectures on the history of mathematics and history of science in the maths faculty. A mathematician by training, he has also trained in the humanities to become a recognised historian. He has lectured in a number of different countries in Europe, North America, South Asia and the Far East on a range of topics to do with history of mathematics, its culture and behaviour as a social actor. His research studies have ranged over much of past mathematics and mathematical sciences, from pre-Euclidean proof theory and pre-Euclidean geometry, ancient astronomy, renaissance engineering, the changing status of mathematics and mathematical arts in the Renaissance, and Enlightenment mathematics. Recently he has also become interested in early Islamic science and Islamic/Persian algebra. He is currently co-authoring a book on ethics in mathematics. He has taught very widely on the last thousand years of history of science, history of mathematics and history of medicine for the Institute for Continuing Education.

Course programme

Friday

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.

19:00 Dinner

20:30 – 22:00 Session 1

From Brunelleschi to the Vatican Obelisk: an illustrated story with a shocking end.

22:00 Terrace bar open for informal discussion

Saturday

07:30 Breakfast

09:00 – 10:30 Session 2

Origins, humanism, the Great Ecumenical Council

10:30 Coffee

11:00 – 12:30 Session 3

Neo-platonism, the authority of the Greeks, and the problem causal explanations

13:00 Lunch

14:00 – 16:00 Free

16:00 Tea

16:30 – 18:00 Session 4

Copernicus, the wrong answer and the problem of physics

18:00 – 18:30 Free

18:30 Dinner

20:00 – 21:30 Session 5

Printing, algebra, and engineers get ambitions above their station

21:30 Terrace bar open for informal discussion

Sunday

07:30 Breakfast

09:00 – 10:30 Session 6

Kepler, Platonism, circles and ellipses, the right answer for the wrong reason?

10:30 Coffee

11:00 – 12:30 Session 7

Galileo: a standard renaissance scientist or a revolutionary scientist? Both?

12:45 Lunch

The course will disperse after lunch

Course syllabus

Aims:

This course will explore the richness and complexity of renaissance science and some aspects of allied technical arts (like engineering and architecture), to see how even though it isn't 'modern' science, scientific thinking was vibrant, innovative, and changing over the 15th and 16th centuries, and to see how "external" influences, (theological, philosophical, social, political … and so on) influenced renaissance science, and how in return science was central and hugely influential on the rest of renaissance thinking. Leonardo da Vinci is far from the whole story.

Content:

The course begins with some engineering phenomena over the 15th and 16th centuries, just to surprise you. There will be an explanation of how the renaissance began from very unexpected sources, and developed in quite surprising and odd ways, and how renaissance *humanism* was far more concerned with scientific questions than most people understand. We will look at the influence of some religious controversies on science (but only in passing on the Reformation – that's a whole other topic and generally later in the story), and try to show the breadth of what we should call science at the time, and *why* it was so much broader than we understand today. Then we will look at the changing status of mathematical arts and mathematical knowledge, how algebra changed everything (don't worry, no equations on the blackboard), and how mechanics changed from a fringe practical subject to a central model for scientific thinking. Renaissance astronomy follows and – perhaps, depending on what the class wants – alchemy or medicine to map how radically science changed over the 16th century. What is most interesting in all of this should be that although there are few 'modern' scientific theories or ideas in all of this, you can see the seeds of modern scientific thinking emerging – for all the "wrong" reasons! Of course, the idea of "wrong" is up for debate. Finally we will look briefly at figures like Kepler and Galileo, right at the start of the 17th century, and how they were moving beyond renaissance ideas, but still deeply rooted in renaissance thinking. The scientific revolution is right around the corner.

Presentation of the course:

The lecture style is engaging, humorous and without the use of PowerPoint. There will be plenty of time for questions and discussion. Sadly we do not have the resources to re-do any 16th century surgical procedures, or calibrate the firing of a decent sized canon, or even re-do alchemical experiments in the lecture room, so there is no field work in this course. Mostly this will just be about thinking, and thinking about the renaissance and earlier science in new ways or from new perspectives.

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

(1) Think about past science in a richer, more historiographically sophisticated way, avoiding the dread errors of the Whig Interpretation of History;
(2) read scholarly and popular literature about past science and about the renaissance from a very different perspective;
(3) understand well known past figures like Leonardo da Vinci or Copernicus or Galileo from a very different perspective;
(4) see the Cathedral of Florence – for example – in a completely new light, and next time you're in Florence, stand there and see it differently from everyone else around you.

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 *

There is no 'essential' reading for this course; There will be ***no*** presumption (unless signalled otherwise) that you have detailed knowledge of the history of renaissance science, so don't feel you need to get up to speed on anything. If you are not familiar with the history of the renaissance generally, then you might spend an afternoon or an evening just getting a very general idea about the intellectual history of the renaissance. Try not to get sucked into the history of renaissance art – that is not relevant to these lectures. I would not recommend the *renaissance* article in Wikipedia, but then I would not recommend *anything* in Wikipedia.

Author	**Title**	**Publisher and date**
Lindberg, DC	The beginnings of western science	2nd ed Chicago UP 2008
Debus, Allen G.	Man and nature in the renaissance	CUP 1978
Hall, Marie Boas	The scientific renaissance	Dover 2011 (and many others)
Hall, AR	The Revolution in Science 1500-1750	CUP and other editions
Galuzzi, P	Renaissance Engineers from Brunelleschi to da Vinci	Giunti Editore, 2008

Background Reading related to the Renaissance period

Brotton, Jerry	The Renaissance: A Very Short Introduction	OUP 2006
Bauer, SW	The History of the Renaissance World: from the Rediscovery of Aristotle to the Conquest of Constantinople	Norton 2013
Campbell, G	The Oxford Illustrated History of the Renaissance	OUP 2019

Aston, M	The Renaissance Complete	Thames and Hudson 2009
Nauert, CG	Humanism and the Culture of Renaissance Europe	CUP 2006
Burckhardt, Jacob	The Civilisation of the Renaissance in Italy by	Many editions – eg. Penguin 1990
Kristeller, OP	Renaissance thought and its sources	Many editions – eg. Columbia UP 1981

Website addresses

Additional information

Venue

Details of how to find Madingley Hall can be found on our website:
http://www.ice.cam.ac.uk/who-we-are/how-to-find-the-institute

Refreshments

Tea and coffee, lunch and dinner will be provided as outlined in the timetable. If you have any specific dietary requirements or allergies and have not already advised us, please inform our Admissions Team on ice.admissions@ice.cam.ac.uk or +44 (0)1223 746262.

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: 12 August 2019