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.

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

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<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Publisher and date</th>
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<tbody>
<tr>
<td>Bauer, SW</td>
<td>The History of the Renaissance World: from the Rediscovery of Aristotle to the Conquest of Constantinople</td>
<td>Norton 2013</td>
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<tr>
<td>Campbell, G</td>
<td>The Oxford Illustrated History of the Renaissance</td>
<td>OUP 2019</td>
</tr>
<tr>
<td>Author</td>
<td>Book Title</td>
<td>Publisher</td>
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<tr>
<td>Aston, M</td>
<td>The Renaissance Complete</td>
<td>Thames and Hudson 2009</td>
</tr>
<tr>
<td>Nauert, CG</td>
<td>Humanism and the Culture of Renaissance Europe</td>
<td>CUP 2006</td>
</tr>
<tr>
<td>Burckhardt, Jacob</td>
<td>The Civilisation of the Renaissance in Italy by</td>
<td>Many editions – eg. Penguin 1990</td>
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**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