HSCI 3833: The scientific revolution, Spring 2012

Instructor: associate professor Rienk H. Vermij
office hours: Monday and Tuesday, 1.00-1.30 p.m. (Physical Science Building, 606)
phone: 325-5416
e-mail: rienk.vermij@ou.edu

TA: Kirsty Lawson
kirstyal@ou.edu
office hours: Tuesday 4.30 to 6.30 p.m. at the Bookmark (Bizzell Library)

Class meets at Monday, Wednesday and Friday from 11.30 to 12.20 at Michael F. Price Hall, room 2020.

Introduction
The sixteenth and seventeenth centuries saw a series of dramatic shifts in the understanding of the natural world, including the replacement of geocentric cosmology with heliocentrism, the rise of experimental methods, the developments of new techniques for observing and describing natural objects, and the use of mathematical methods. Fifty years ago, historians of science located the birth of modern science in this period and dubbed it the “Scientific Revolution”. This label has stuck, but present historians of science are much more sceptical about whether modern science was “born” at any point of time. There is no longer a clear consensus on when and why the scientific revolution happened, who and what were involved, and even if the term makes any sense at all. These debates are not just about what happened in the past, but about how we today define science and how we understand the place of science in the modern world.

General rules
Everyone is expected to keep up with the reading schedule and to participate in class discussion of the readings. Exams are given both over the assigned readings and over the information the instructor gives in class. If the students have missed a class, it is their responsibility to find out what has been taught or announced.

Messages will be send to your OU email account. If you do not use that account normally, please arrange for emails to be forwarded from that account to the one you use.

It is the policy of the university to excuse the absence of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays. Please see me in advance.

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so that we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

Evaluation
There are 500 points to be earned in this class, in the following way:
First, (short) essay): 50 points
Three essays, 100 points each: 300 points
Class participation: 50 points
Final exam: 100 points
The final exam will be a take-home exam. Quizzes may be given and students may be asked to prepare questions. Those who do not make at least 2/3 of the quizzes (graded as sufficient), will not get the 100 points for participation.

Class readings

The following texts are on D2L:
- Sara Schechner, Comets, popular culture and the birth of modern cosmology (Princeton 1997) 104-123.
- Owsei Temkin, The falling sickness. A history of epilepsy from the Greeks to the beginnings of modern neurology (Baltimore 1945) 137-172.
- William Harvey, An anatomical disputation concerning the movement of the heart and blood, translated by G. Whitteridge (Oxford etc. 1976) 74-77, 100-105.
- Bernard Le Bovier de Fontenelle, Conversations on the plurality of worlds, translated by H.A. Hargreaves (Berkeley etc. 1990) 9-22.
- Leeuwenhoek, letters, from Alle de brieven, I (Amsterdam 1939).

Websites:
Copernicus’ revolutions: http://www.webexhibits.org/calendars/year-text-Copernicus.html
Galileo project: http://galileo.rice.edu
Museo Galileo: http://www.museogalileo.it/en/
Newton project: www.newtonproject.sussex.ac.uk

Reading schedule. The schedule is open to modifications.

Week 1-2: Introduction
Jan 16 Martin Luther King day, no class
  18 Introduction
  20 Dear, Revolutionizing the sciences
  23 Temkin, Falling sickness
  25 Schechner, Comets
  27

Week 3-5: Copernicus and Galileo
  30 Copernicus, On the revolutions
      First (short) essay due.
Febr 1 Rossi, 56-72
  3
  6 Willach, Long road
  8 Galileo, Sidereus nuncius
 10 Scheiner, in Reeves and Van Helden
13 Finocchiaro, Galileo affair
Week 6: Science in the first half of the seventeenth century

20 Gilbert, On the magnet
  Second essay due

22 Dijksterhuis, Mechanization

24 Rossi, 139-156; Harvey, Motion

Week 7-9: Descartes and Newton

27 Descartes, World, 21-32

29 Rossi, 99-138

March 2 Descartes, World, 99-106, 142-169

5 Rossi, 203-229; Deason, Reformation theology

7 Newton, fragments from Principia

9 Newton, New theory of light and colors, online in Newton Project.

12 Dobbs, Newton’s commentary

14 Newton Project

16 “

19-23: Spring break, no class

Week 10: Science in the second half of the seventeenth century

26 Fontenelle
  Third essay due

28 Rossi, 192-203.


Week 11-13: Special subjects
April 2  Fournier, Fabric of life
4  Leeuwenhoek, texts
6  Jorink, Book of nature
9
11  t.b.a.
13  t.b.a.
16  H.F. Cohen, The scientific revolution
    Fourth essay due
18  Zilsel, Sociological roots
20  Cunningham and Williams, Decentring
23
25
27
30  t.b.a.

May 2  t.b.a.
4  t.b.a.