Course Code: HUMA 5692

Course Title: The Scientific Revolution (1450 to 1750)

Course Offered in: Fall 2025

Course Instructor: Dr. Marco Caboara

Course Description:

This postgraduate course explores the scientific revolution in early modern Europe, examining the cultural and intellectual framework in which new discoveries were made, the shift towards a mathematic vision of the world, and the development of new experimental techniques. Through the comparison with other intellectual traditions, especially the Chinese scientific tradition, students will gain a deeper understanding of the scientific revolution and its impact on modern science and the modern world. The course aims to develop students' analytical and communication skills, as well as their understanding of early modern intellectual history.

Course Intended Learning Outcomes (ILOs):

	On successful completion of the proposed course, students will be able to:
1	Identify the most important changes that took place in science in the early modern period, their causes, and their historical context
2	Gain a complex understanding of the global context of exchange and discovery leading to the Scientific Revolution
3	Familiarize with the scholarly debates about the Scientific Revolution, its definition, timing and significance
4	Evaluate past sources about the Scientific Revolution
5	Effectively and appropriately communicate their understanding of the Scientific Revolution in written papers and oral reports
6	Analyze the impact of science in larger socio-cultural context

Course Outline:

Week	
1	The scientific revolution Shapin, 2018 ch. 1 Poskett 2022 Introduction Cañizares-Esguerra 2017
2	New and old worlds- Humanism and discoveries Poskett 2022 ch. 1 Grafton 1995, ch. 5 Chow 2007
3	The Scientific Revolution and Aristotelian natural philosophy Dear 2009, ch. 1-2 Grant 1978 Copenhaver 1990 (McGrew et al. 2009, readings 1.5-1.9)
4	Heaven and Earth- From Ptolemy to Copernicus Poskett 2022 ch. 2 Heninger 1977, ch. 1-2 Westman 1986 (McGrew et al. 2009, readings 2.1-2.3)
5	Revolution in Astronomy Hall 2014, ch. 5 Heninger 1977, ch. 3 Kuhn 1977 (McGrew et al. 2009, readings 2.4-2.7)
6	Galileo and the Church Koyre 1978 part 3 van Helden 1994 Wilding 2016

7	Descartes and mechanism Dear 2009 ch. 5 Dear 1998 Westfall 1977 ch. 3 and 7 (McGrew et al. 2009, readings 3.2-3.3)
8	New Places for Natural Knowledge Dear 2009 ch. 6 Westfall 1985 Lux 1991
9	Progress of experimentation Dear 2009 ch. 7 Shapin 1984 Findlen 1993 (McGrew et al. 2009, readings 3.1, 3.4)
10	Medicine and Alchemy Ackerknecht 2016, ch 9-10 Debus 1988 Cook 1990
11	Natural History Findlen 1996 Introduction and Ch. 1 Ashworth 1990 Cook 1993
12	Newton Dear 2009 ch. 8 Cohen 1985 Poskett 2022 ch. 3 (McGrew et al. 2009, readings 2.14-2.18)
13	Scientific Societies and Industrial Revolution Jacob 1997 Iliffe 1992 Poskett 2022 ch. 4

Planned Assessment Tasks:

Presentations:	25%
Final written assignment (3500 words):	50%
Course participation/ reading comprehension:	25%

Bibliography

Ackerknecht, Erwin H. 2016. *A Short History of Medicine*, re . ed. (Baltimore: Johns Hopkins University Press.

Ashworth, Jr., William B. 1990. "Natural History and the Emblematic World View," in *Reappraisals of the Scientific Revolution*, eds. David C. Lindberg and Robert S. Westman (Cambridge: Cambridge U. P.), pp. 303–33.

Cañizares-Esguerra, J. 2017. On Ignored Global "Scientific Revolutions". *Journal of Early Modern History*, 21(5), 420-432.

Chow, K. W. 2007. "Reinventing Gutenberg: Woodblock and movable-type printing in Europe and China." In *Agent of Change: Print Culture Studies after Elizabeth L. Eisenstein* (pp. 169-192). University of Massachusetts Press.

Cohen, Bernard. 1985. "The Newtonian Revolution." in Revolution in Science, (Cambridge, Mass.: Belknap Press of Harvard University Press, 1985 (Hellyer 180-193)

Cook, Harold. 1990. "The New Philosophy and Medicine in Seventeenth-Century England." *Reappraisals of the Scientific Revolution*, edited by David C. Lindberg and Robert S. Westman, Cambridge, Cambridge University Press, pp. 397-436.

Cook, Harold. 1993. "The Cutting Edge of a Revolution? Medicine and Natural History near the Shore of the North Sea" in *Renaissance and revolution: Humanists, scholars, craftsmen, and natural philosophers in early modern Europe*, ed. Field, J. V., & James, F. A. J. L. Cambridge University Press, pp. 45-61.

Copenhaver, Brian P. 1990. 'Natural Magic, Hermetism, and Occultism in Early Modern Science', in *Reappraisals of the Scientific Revolution*, ed. David C. Lindberg and Robert S. Westman (Cambridge: Cambridge University Press), pp. 261–301

Dear, Peter. 1998. “Mechanical Microcosm: Bodily Passions, Good Manners, and Cartesian Mechanism”, *in Science Incarnate: Historical Embodiments of Natural Knowledge*, ed. Christopher Lawrence and Steven Shapin (Chicago: University of Chicago Press), pp. 51–82.

Dear, Peter, 2009. *Revolutionizing the sciences* (Princeton University Press)

Debus, Allen G. 1988. “The Chemical Philosophy and the Scientific Revolution,” in *Revolutions in Science: Their Meaning and Relevance*, ed. William R. Shea (Canton, Mass.: Science History Publications), pp. 27–48

Findlen, Paula. 1993. "Controlling the experiment: Rhetoric, Court Patronage and the Experimental Method of Francesco Redi ' *History of Science* 31.1: 35-64.

Findlen, Paula. 1996. *Possessing Nature Museums, Collecting, and Scientific Culture in Early Modern Italy*, University of California Press.

Grafton, Anthony, Shelford, April and Siraisi, Nancy G. 1995. *New Worlds Ancient Texts : The Power of Tradition and the Shock of Discovery*. Harvard University Press.

Grant, Edward. 1978. ‘Aristotelianism and the Longevity of the Medieval World View’, *History of Science* 16: 93–106

Hall, Rupert A. 2014. *Revolution in Science* 1500-1750. Routledge.

Hellyer, Marcus. 2003. *The scientific revolution : the essential readings*. Blackwell Pub.

Heninger, S. K. 1977. *The Cosmographical Glass*, San Marino: Huntington Library.

Helden, Albert Van. 1994. “Telescopes and Authority from Galileo to Cassini”, *Osiris* 9: 8-29

Iliffe, Robert C. 1992. "'In the Warehouse': Privacy, Property and Priority in the Early Royal Society " *History of Science* 30: 29-68.

Jacob, Margaret C. 1997. The Cultural Origins of the First Industrial Revolution. In *The scientific revolution : the essential readings,* ed. Marcus Hellyer, Blackwell Pub 2003, pp. 196-215.

Koyre, Alexandre. 1978. *Galileo Studies*, Humanities Pr., Atlantic Highlands, N.J.

Kuhn, Thomas S. 1977. "Mathematical versus Experimental Traditions in the Development of Physical Science," Id. *The Essential Tension: Selected Studies in Scientific Tradition and Change* (Chicago: University of Chicago Press) 1-65

Lux, David. 1991. ‘Societies, Circles, Academies, and Organizations: A Historiographic Essay on Seventeenth-Century Science’, in Peter Barker and Roger Ariew (eds.), *Revolution and Continuity: Essays in the History and Philosophy of Early Modern Science* (Washington, DC: Catholic University of America Press), pp. 23–43.

McGrew Timothy J Marc Alspector-Kelly and Fritz Allhoff. 2009. *The Philosophy of Science : An Historical Anthology*. Chichester U.K: Wiley-Blackwell.

Poskett, James. 2022. *Horizons : The Global Origins of Modern Science*. HarperCollins.

Shapin, Steven. 1984. “Pump and Circumstance: Robert Boyle’s Literary Technology,” *Social Studies of Science*, 14: 481–520.

Shapin, Steven, 2018. *The Scientific Revolution*. Chicago: University of Chicago Press.

Westfall, Richard. 1977. *The Construction of Modern Science : Mechanisms and Mechanics*. Cambridge: Cambridge University Press.

Westfall, Richard. 1985. "Science and Patronage: Galileo and the Telescope; *Isis* 76: 11-30

Westman, 1986. Robert S. “The Copernicans and the Churches,” in *God and Nature: Historical Essays on the Encounter between Christianity and Science*, eds. David C. Lindberg and Ronald L. Numbers (Berkeley: University of California Press), pp. 76–113

Wilding, Nick. 2016. “Forging the Moon.” *Proceedings of the American Philosophical Society*, 160.1: 37–72.