Conceptual foundations of modern science

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http://goclenius.net/ph358-2012s

Conceptual foundations — Syllabus

Readings
19 Jan  Butterfield, "The historian"; Kuhn, "Mathematical vs. experimental"; Porta, *Magick*
24 Jan  Dear, "Mathematical principles"; Findlen, "Between Lent and Carnival"
26 Jan  Cunningham & Williams, "De-centring"

Modern science

The aim of this course is to present some of the basic concepts underlying modern science in historical context. Insofar as many of those concepts first appeared or became predominant in the seventeenth and early eighteenth centuries, the course concentrates on that period.

Among the concepts to be studied are:
(1) Nature, natures, naturalism: the relation of the natural world to God; the sufficiency of natural causes in explanation.
(2) Methods: observing and intervening, the use of hypotheses.
(3) Explanations: corpuscularianism, mechanism, the role of mathematics.

Requirements

The primary requirement of the course is to write four short papers. "Short" means approximately 1600 words; the final paper will be more open-ended than the rest. The first paper will be due on 10 February.

I may also assign "exercises". These will be brief discussions, no more than one page, of topics arising in the texts. Example: "write a paragraph explicating Descartes’ claim that matter is extension". I will not grade the exercises, but I will note whether or not you have completed them satisfactorily. You can omit one exercise during the semester.

This class is small enough that I will devote quite a bit of time to discussion; it will be more like a seminar than a lecture course. Be prepared to talk about the texts. Most of what you retain from a course like this is impressed upon your memory by actively thinking about and commenting on the texts. Generally speaking, students who participate do better than students who don’t.

I will grade your written work on its quality both as philosophy and as academic writing in English.

Texts


Online items:

BUTTERFIELD, Herbert. "The Historian and the History of Science". *Bulletin of the British Society*
for the History of Science 1.3 (April 1950) 49–58
+ http://www.jstor.org/stable/40824718


Readings

Note: I will be filling in other items as we go along. Everything other than Gaukroger, Mayr, and Dear will be available either online or from me. See http://library.wustl.edu/libhelp/proxylinks.html for information on proxy links (you need to use these if you’re reading restricted material from off campus).

17 Jan Introduction
19 Jan Butterfield, “The historian”; Kuhn, "Mathematical vs. experimental"; Porta, Magick
24 Jan Dear, “Mathematical principles”; Findlen, “Between Lent and Carnival”