

HISTORY OF SCIENCE 324
SCIENCE IN THE ENLIGHTENMENT
Spring, 2005

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Office hours: 10:00 – 12:00 Tuesday

GENERAL DESCRIPTION

The primary purpose of this course is to present a survey of eighteenth-century thought, especially as it relates to science. Since it is my conviction that this is best done through contact with the eighteenth-century writers themselves, the readings emphasize primary sources (that is, writings from the period rather than later interpretations by historians). In order to give you an opportunity to discuss and understand the readings, the course will feature two lectures and one discussion section per week. These discussion sections are NOT optional, and as you can see from the course grading (below), they will carry a considerable weight in your final grade. So it will be worth your while to prepare for them by doing the reading.

There are 2 required textbooks, available at the Underground Textbook Exchange or on reserve in College Library:

Dorinda Outram, *The Enlightenment*

Jean d'Alembert, *Preliminary Discourse to the Encyclopedia of Diderot*

In addition, there is a packet of xeroxed readings, which is available for purchase in the History of Science office, 7143 Social Science. It costs \$26.00, cash or check, **and there are no refunds!** Once you've bought it, it's yours to keep and cherish forever. A copy of the reading packet is also available on reserve in College Library.

NOTE: There is an useful of 18th-century science in Thomas Hankins, *Science and the Enlightenment*. Unfortunately, Hankins' book is long out of print, so you will have to read it on reserve in College Library.

COURSE REQUIREMENTS AND GRADING

If you are an undergraduate and taking the course for 3 credits, your work will consist of three 5-6 page papers, the last of which will be written at the end of the course, and of course attendance and participation in weekly discussions. Students taking the course for 4 credits will also do a 10-page research paper, using primary sources, on a topic to be determined in consultation with me. At the beginning of each week, I will distribute a reading guide that will help frame the reading and suggest particular things in the reading that you might pay attention to. For 6 of the 11 weeks that we meet for discussion, you will hand in a 1 to 2-page reading response (handwritten is ok, typed is preferable) that responds to the questions or presents your own reaction to the readings. The choice of which weeks you write responses for is yours.

The grading of your essays will depend on the following factors:

- ◆ The formulation of a clear thesis in your introduction. Remember, an essay of this kind is an exercise in persuasion. You are attempting to *convince* the reader that what you have to say on this topic is correct. So write with that goal in mind, by making a clear statement about

what you are claiming.

- ◆ The organization of the essay into a clear and logical argument, in which each paragraph is clearly connected to the one preceding and following it. Here's a thought experiment: If I can cut up your paper into individual paragraphs, rearrange them any way I choose, and have that *not* make any difference in the overall sense or coherence of the essay, then the paper lacks the structure it ought to have.
- ◆ The use of evidence, *drawn mainly from the readings* and never from sources not directly connected with the course, in making your point.
- ◆ The care taken in proofreading to remove typographical, grammatical and other errors. This is college, not high school. You are expected to produce polished essays that have been edited.

If you do all of these things pretty well, that will get you a high "B". To get an "A", you have to do one more thing:

- ◆ Say something original by showing that you are not merely repeating what you have heard in lecture or seen in the readings. In other words, you have to take your thinking beyond what has been presented to you.

Late papers will be assessed penalties as follows: If turned in by Friday afternoon following the due date, 1/4 of a grade point on a 4-point scale. If turned in by the following Wednesday, 1/2 grade point. After that, 1 full grade point.

One final point about grading and paper-writing. You will be asked to cite your sources in writing your essays and giving proper credit for the source of both your ideas and your information. I will help you do this properly, but you should also look at the information presented at the following web site:

<http://www.wisc.edu/writing/Handbook/QuotingSources.html>.

Failure to adhere to these guidelines constitutes plagiarism, which is a serious academic offense. A plagiarized paper will be given an "F".

ACCOMODATION OF STUDENT NEEDS

Extensions to the due date for assignments will only be granted if requested before the due date. Legitimate reasons include religious observances, illness or family emergency or an unusually crammed examination schedule. The sudden death of a printer, however beloved it may be, is not a legitimate reason for an extension.

Additionally, I will make every effort to honor requests for reasonable accommodations made by students with disabilities. If you think you may qualify for such accommodations, contact the McBurney Disability Resource Center at 263-2741 to establish your eligibility. The earlier you make a request, the more easily it can be accommodated, so please do try to plan ahead.

Grades will be weighted as follows:

25% each paper (total 75%)
25% discussion & reading responses

Graduate students should consult with me about the written work they need to do for this course.

SCHEDULE OF WEEKLY TOPICS AND READINGS

Week 1

Jan. 19 - Introduction: Science and Enlightenment

Reading: Immanuel Kant, "What is Enlightenment?" (to be distributed in class)

UNIT I: THE CULTURE OF ENLIGHTENMENT

Week 2 (Jan. 24 – Jan. 28) Main Themes of Enlightenment Thought

Reading: Dorinda Outram, *The Enlightenment*, chaps. 3-4.

Alexander Pope, *Essay on Man* (packet)

Week 3 (Jan. 31 – Feb. 4) The Social World of Enlightenment

Reading: John Locke, *An Essay Concerning the True Original Extent and the End of Civil Government* (packet)

Outram, *The Enlightenment*, chapter 2

Week 4 (Feb. 7 – Feb. 11) The Press and the Popularization of Knowledge

Reading: Voltaire, *Philosophical Letters* (packet)

Joseph Addison, Selections from the *Spectator* (packet)

Week 5 (Feb. 14 – Feb. 18) Encyclopedias and the Collection of Useful Knowledge

Reading: d'Alembert, *Preliminary Discourse to the Encyclopedia of Diderot*, all.

Feb. 16: Distribution of first writing assignment

UNIT II: FORCE AND MATTER

Week 6 (Feb. 21 – Feb. 25) The Assimilation of Newton's Natural Philosophy

Reading: Pierre-Louis Moreau de Maupertuis, *A Dissertation on the Different Figures of the Celestial Bodies* (packet)

Week 7 (Feb. 28 – Mar. 4) Chemistry as an Enlightenment Science

Reading: Antoine Laurent Lavoisier, *The Elements of Chemistry* (packet)

Joseph Priestley, *Experiments and Observations on Different Kinds of Air* (packet)

March 2: First writing assignment due in class

Week 8 (Mar. 7 – Mar. 11) The Forces of Living Matter

Reading: Denis Diderot, *D'Alembert's Dream* (packet)

John Turberville Needham, "Some Observations on the Generation, Composition and Decomposition of Animal and Vegetable Substances." (packet)

Lazaro Spallanzani, "Seminal Vermiculi" (packet)

Week 9 (Mar. 14 – Mar. 18) The Subtle Fluids

Reading: Benjamin Franklin, selected experiments on electricity (packet)

Franz Anton Mesmer, *Dissertation on the Discovery of Animal Magnetism* (packet)

March 16: Distribution of second writing assignment

Week 10 (Mar. 21 – March 25)
Spring Break

UNIT III: PUTTING THE PROPER NAMES TO THINGS

Week 11 (Mar. 28 – Apr. 1) Enlightenment Concepts of System and Order

Reading: Condillac, *Logic* (packet)

Linnaeus, *Critica Botannica* (packet)

Mar. 30: Second writing assignment due in class

Week 12 (Apr. 4 – Apr. 8) From Natural History to the History of Nature

Reading: Buffon, "*Initial Discourse: On the Manner of Studying and Expounding Natural History*" (packet)

Hutton, *Theory of the Earth*

(NOTE: THERE WILL BE NO REGULAR FRIDAY DISCUSSION THIS WEEK)

UNIT IV: A SCIENCE OF HUMANITY

Week 13 (Apr. 11 – Apr. 15) Travel and Exploration as Forms of Scientific Practice

Reading: Forster, *A Voyage Round the World* (packet)

Kolb, *Present State of the Cape of Good Hope* (packet)

Outram, *The Enlightenment*, chapter 5

Week 14 (Apr. 18 – Apr. 22) The Comparative Study of Human Society

Reading: Montesquieu, *The Spirit of the Laws* (packet)

Week 15 (Apr. 25 – Apr. 29) The Human Animal

Reading: Condillac, *Treatise of the Sensations* (packet)

Blumenbach, *On the Natural Variety of Humans* (packet)

Outram, *The Enlightenment*, chapter 6

Week 16 (May 2 – May 6) The Science of Statecraft

Reading: Outram, *The Enlightenment*, chapter 7–8