Modern Survey in the History of Science

This course is a team-taught graduate survey of the history of science, intended to broaden and deepen the content presented in HSCI 3023 (which, in most cases, you will be auditing in conjunction with this graduate course), and to introduce you to advanced historiography that relates to the modern period. You will encounter both classic work in the discipline as well as more recent viewpoints. In conjunction with your auditing of HSCI 3023, the goal for this 5990 supplement is to provide you with a working knowledge of the basic “canon” of topics and historiographic issues in the modern period, and an awareness of the broad array of themes and content that constitute the larger web of connections in thinking about the history of modern science and technology. In reaching this goal you will be better prepared to undertake such tasks as build your own bibliographies for further study and research and be better prepared to serve as a teaching assistant in the undergraduate survey at a later date, due to a fuller knowledge of the historical background and historiography.

Course Mechanics

3023 Component: All students in this 5990 are expected to be directly involved in one of the 3023s being offered this semester, either as an actively auditing student or as the course GTA. The professor for the 3023 you take will specify the exact nature of your obligations to that course, but you should expect, at a minimum, to be required to attend the lectures and discussions and to do the readings. Some faculty may ask you to do weekly homework assignments or to take quizzes and exams as well; some may not.

Weekly 5990 Seminar: For the most part, the course will meet weekly as a seminar (exceptions are noted in the schedule below). Students are expected to turn in a short writing assignment for each week that has assigned reading: Generally, the short assignment will be a book review of approximately 750-900 words on the primary reading for that week (such a review should go beyond summarizing key points and integrate an analytical discussion as well). However, some instructors may instead give you specific instructions on how to structure the short writing assignments, or give you a specific question or questions to focus on. If so, they will forward those instructions to you via email prior to your need to prepare the assignment. As the overall coordinator for the course, Dr. Weldon will oversee this process as well as the general structure – if you have any questions about logistics at any time, feel free to contact him. If you are unclear about the expectations for any particular assignment, please ask the relevant professor.

Grading: Your grade for the course will be determined by all five participating faculty. It will depend upon both your writing assignments and your participation in the weekly discussions, with the writing assignments being weighted more heavily.

Readings: For the required reading, we will seek to place copies of texts owned by OU on reserve; those in the general stacks will be placed on reserve at the Bizzell Circulation Desk, and those owned by the HSCI Collections will be shelved in a place to be determined by Dr. Magruder. If articles are part of the required reading we will place copies on a designated shelf in PHSC if no online access is available. We do this as a convenience for you, and in recognition of the costs of course materials. We do urge you to consider buying course materials as part of your graduate training. Sources such as amazon.com often offer discounted prices for new texts and access to used copies; bookstores such as abe.com, alibris.com, bookfinder.com, and others are also helpful sources for used books. Note: If you are planning on relying on reserve materials for writing your papers, it will be to your benefit to develop time-sharing expectations with the other seminar participants, to prevent any last-minute train wrecks in the days before a paper is due.

Course Schedule

Friday, January 21 — Introductory class
Instructor: Dr. Stephen Weldon, Dr. Hunter Heyck, Dr. JoAnn Palmeri, Dr. Katherine Pandora, Dr. Piers Hale, Dr. Suzanne Moon, Dr. Peter Soppelsa

Friday, January 28 — The Birth of the Social Sciences
Instructor: Dr. Hunter Heyck
Readings:

Friday, February 4 — 20th Century Social Science
Instructor: Dr. Hunter Heyck
Readings:

Friday, February 11 — Science and Religion: Historiography and Theory
Instructor: Dr. Stephen Weldon
Readings:

Friday, February 18 — Science and Religion: Case Study in Early 20th-Century Britain
Instructor: Dr. Stephen Weldon
Readings:

Friday, February 25 — Modern Astronomy (I)
Instructor: Dr. JoAnn Palmeri
Our goal is to become familiar with topics and trends in the history of 19th/20th century astronomy. We will read recent historiographical essays and examples of recent scholarly work.
For the first meeting, please bring copies of HSCI 3023 syllabi for classes you have assisted with, taken for credit, or observed.

Readings
1. Historiography
   - Robert Smith, “Remaking Astronomy: Instruments and Practice in the Nineteenth and Twentieth Centuries,” 154-173
2. Research
      History of Science 41 (June 2003): 141-162. Available online.
   b. Lankford, John. Excerpts from American Astronomy: Community, Careers, and Power, 1859-1940
      Read preface and chapter 1. Copies provided.
   c. Sign up for one additional reading, from the article list provided. Email me your first
      and second choices by Feb. 14. Be prepared to present an overview of the article to the
      class (Be prepared to say something about the author and the journal, as well.) Most
      should be available online. If not, submit copy request form.

Written Assignment
For the written assignment, you will use the readings to select and explore some aspect of
the historiography of modern astronomy, and/or situate the history of modern astronomy
within the context of broader trends in the history of science and allied fields (4-5 pages).

Friday, March 4 — Modern Astronomy (2)
Instructor: Dr. JoAnn Palmeri
Readings
Our goal is to examine how two different historians have approached the same topic (the existence of two
competing theories of the universe in the mid-20th century).
   • Craig Sean McConnell. The Big Bang and Steady State Controversy: Cosmology in
   • Helge Kragh. Cosmology and Controversy: The Historical Development of Two Theories
      of the Universe, 1996. Copies on reserve in Bizzell and HSCI. Browse table of contents
      and chapters 1 and 7. Read preface and epilogue.

Written Assignment
Compare and contrast these two historical projects in a short paper (4-5 pages). You may utilize reviews
of Kragh’s work as appropriate.

Friday, March 11 — Technology (1)
Instructor: Dr. Suzanne Moon
Readings:
Carole Harrison and Ann Johnson (eds.), National Identity: The Role of Science and Technology,
Osiris 24 (2009).
Please do the following technology-oriented readings from the volume: Mukerji: “The New
Rome”; Johnson: “Material Experiments”; Siddiqi: “Germans in Russia”; Jones-Imhotep:
“Communicating the North”; Basset: “MIT-trained Swadeshis”; Moon: “Justice,
Geography, Steel”

Friday, March 18 — No Class Spring Break

Friday, March 25 — Technology (2)
Instructor: Dr. Peter Soppelsa
Clay McShane and Joel Tarr, The horse in the city: living machines in the nineteenth century

Friday, April 1 — *Technology (3)*

**Instructor: Dr. Peter Soppelsa and Dr. Suzanne Moon**


Friday, April 8 — *Modern Biology (1)*

**Instructor: Dr. Piers Hale**

With the publication of *Origin* in 1859, Darwin placed the “mystery of mysteries” the origin of new species on an acceptably scientific footing. In this class we will become familiar with the main thrust of Darwin’s argument, as well as with the structure of his argument. As Michael Ruse has long since pointed out, Darwin went out of his way to frame his argument upon the model of good science outlined by his former Cambridge tutor, the philosopher and historian of science, William Whewell.

**Readings:**


William Whewell. *The Philosophy of the Inductive Sciences*, 1840. (pdf extract will be provided.)

Friday, April 15 — *Modern Biology (2)*

**Instructor: Dr. Piers Hale**

While Darwin may have made very little mention of human evolution in *Origin*, this dominated subsequent discussion of Darwin’s work. While the theological implications of this fuelled initial debate, the evolutionary history of humanity was also seen as having distinctly political implications as well. In this class we will look at what Darwin had to say on human evolution when he did eventually go into print on the matter in 1871, and also look at the divergent views of “Darwin’s Bulldog”, and reformist liberal Thomas Huxley, and the anarchist Russian geographer, then exiled in London, Peter Kropotkin.

**Readings:**


Thomas Henry Huxley, “Prologomena” to *Evolution and Ethics* (1894). pdf will be provided.

Peter Kropotkin. *Mutual Aid: A Factor in Evolution*. (1902) extract. pdf will be provided.

Friday, April 22 — *History in the Digital Age (1)*

**Instructor: Dr. Katherine Pandora**

**Readings:**

Conference proceedings that are online.

Specific websites.
Friday, April 29 — *History in the Digital Age (2)*  
**Instructor: Dr. Katherine Pandora**

**Readings:**


Friday, May 6 — No Class