

## SCIENCE AND SOCIETY IN WESTERN CIVILIZATION II (HIST 334)

TR 9:00 – 10:15

University Hall 119

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Office Hours: TR 1:15 – 2:30

*Science and Society in Western Civilization II* (History 334) considers the main lines of Western Science and Society from the time of Newton to the present. Beginning with the Scientific Revolution leading from Copernicus to Newton, the course assesses the position of science in Western Civilization during its age of earliest mature achievements. Topics important in the treatment of the succeeding century include the rise of biological classification, the rise of modern chemistry, and the onset of the industrial revolution. During the nineteenth century portion of the course, lectures stress the maturation of biology in such fields as cell theory, embryology, and histology. Darwinian evolution is considered in connection with its origin in the earth sciences, as well as its more conventionally biological precursor studies. Investigation of the thermo-dynamic synthesis leads onward into electromagnetic studies during the last half to the century. The so-called second industrial revolution is treated at this point also. Passing onward into the twentieth century, the course attempts to cover the revolution in modern physics, the transformation of the life sciences into adjuncts of physics and chemistry, the growing understanding of the structure and process of the universe, and the increasing interaction between pure and applied science. The course concludes with a consideration of some of the modern social and political problems which science caused by its success.

### *Course Outcomes:*

By the end of the course, students will be able to:

1. examine, interpret, and explain how personal, political, cultural, economic, and social experiences and/or structures shaped the history of science and society.
2. analyze data using historical methodologies to evaluate causal arguments and analyze assertions, assumptions, and explanatory evidence related to the history of science and society.
3. investigate the diversity of human experience within Western culture, considering, for example, ethnicity, gender, language, race, religion, sexual orientation, age, culture, disability, and social class, and appreciate the contributions of different social groups in science and society.

4. identify and explain the major themes of the history of science. Students will also be able to write about the role of science in society and social implications of science.

**Required Books** (available at University Bookstore and Amazon and on reserve at the Library):

*Making Modern Science* by Peter Bowler and Iwan Morris.

*A History of Science in Society: A Reader* by Andrew Ede and Lesley B. Cormack

**STUDENT RESPONSIBILITIES:**

1. attending class sessions.
2. reading assigned material (~ 50 pages per class) on time.
3. actively participating in class discussions.
4. maintaining respect for others despite clashing views on controversial subjects.
5. completing rough draft and final paper (~ 8 page paper).
6. completing 2 essay exams (midterm and final).

**GRADES:**

The final grade for the course will be based on the following:

Examination #1	200
Examination #2	200
Reading Quizzes	200
Term Paper	200
Presentation	50
Attendance	150
<b>Total</b>	<b>1000</b>

**READING QUIZZES** (50 points each, 200 points total): In order to reinforce concepts introduced in the course readings and discussions, there will be four quizzes and an additional make up quiz to replace one of the four regularly scheduled quizzes. Quizzes must be taken in class on the day indicated in the syllabus. Missed quizzes will receive no credit. One missed quiz can be replaced by the makeup quiz.

**EXAMINATIONS** (200 points each):

Exams will be based on all the material covered during the course, including lectures, discussions, films, and readings. They can be made up only if the absence is due to serious illness, death in the immediate family, or participation in an approved university activity. Arrangements for make-up exams should be made before (if possible) or (if not) immediately following the scheduled exam. The specific format for each test will be announced in class before the scheduled exam date.

**TERM PAPER** (200 points) and **PRESENTATION** (50 points): There will be one paper, 8 pages long (2000 words), **DUE IN CLASS ON TUESDAY, December 5, 2017.**

All papers must be double-spaced and typed. Handwritten papers will not be accepted. No paper extensions, except in the case of serious and documented illness. Papers must be submitted to Safe Assign (see Blackboard for Link to Submission) before the deadline. Email submissions will not be accepted. For each class the paper is late, it will drop 2 points out of 25. Papers placed in my mailbox in the History Department will not be accepted. It is your responsibility to confirm I have received your paper and it is in your best interest to submit them on time. The papers will be graded on the strength of their ideas, their ability to advance a thesis or interpretation, and how well they are written (their use of language, spelling, punctuation, grammar). To receive full credit, a paper must include an introduction, a thesis or argument and the details to support it, and a conclusion. The paper must have at least 2000 words and no more than 2200 words. The instructor and / or graduate assistants will provide detailed feedback on your paper. We will grade the papers on Form and Content.

*Important:* Each and every citation in papers must be clearly and correctly referenced. Even when you refer to another person's ideas, you must credit the original source. See the course website for online style manuals.

*Writing and Honesty:* Plagiarism is one of the most serious offenses at the Purdue University and at any academic institution. See the Purdue University *Student Handbook* section titled: "Violation of the Academic Honor Code" for explicit details of what constitutes plagiarism, but for the purposes of this course anything you write must be your original work. Quotations should be brief and must be clearly cited to the original source (this includes internet sources) according to an approved style guide such as MLA, Chicago, or Turabian (online versions of these style guides can be found on the course website). I am more interested in your honest thoughts about the material than long, unanalyzed quotations. In order to assist you in avoiding plagiarism, you will need to submit your paper to Safe Assign, this will identify citation errors or problems. See Blackboard for the Safe Assign Submission link.

#### ATTENDANCE (150 points):

There is no better way to clarify your ideas and sharpen your opinions regarding a new subject than to discuss them with fellow students and the instructor. It is vital that you attend class and be prepared to engage each other. Starting Week 2, I will take attendance using a sign in sheet. After one unexcused absence, I will deduct 5 points for each subsequent unexcused absence.

#### **Attendance Policy**

Excused absences include documented illness, deaths in the immediate family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. Accommodations for these excused absences will be made and will do so in a way that does not penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

### Grading Scale

A 93-100	A- 90-92	
B+ 88-89	B 83-87	B- 80-82
C+ 78-79	C 73-77	C- 70-72
D+ 68-69	D 60-67	
F <60		

### Academic Honor Policy:

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. Purdue's nondiscrimination policy can be found at: [http://www.purdue.edu/purdue/ea\\_eou\\_statement.html](http://www.purdue.edu/purdue/ea_eou_statement.html).

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing [integrity@purdue.edu](mailto:integrity@purdue.edu) or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

"As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue." For more information, see: [Purdue's Honor Pledge](#).

### Academic Dishonesty

*Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, [Student Regulations](#)] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]*

For additional details, see Purdue's student guide for academic integrity:

<https://www.purdue.edu/odos/academic-integrity/>

### Disability Resource Center

The Disability Resource Center (DRC) is a resource for students and instructors. Students may present a "Letter of Accommodation" to the professor at any point in the semester. If you have questions, please contact the DRC at: 765 494-1247. You may also visit the DRC at [drc@purdue.edu](mailto:drc@purdue.edu).

**CAPS Information:**

Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765) 494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or through its counselors physically located in the Purdue University Student Health Center (PUSH) during business hours.

**Syllabus Change Policy**

“Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.”

**Website**

The Syllabus, assignments, style guides, term sheets, and other information relevant to *Science and Society II* can be found at <https://mycourses.purdue.edu> You will need to use your Purdue ID and Password to access the site via <https://mycourses.purdue.edu>. If you do not have a PUID or experience trouble logging in, contact IT Support for assistance.

**COURSE SCHEDULE (subject to change):**

**Bowler and Morus, *Making Modern Science*,**  
**HHS Reader: Ede and Cormack, eds., *A History of Science in Society: A Reader***

**Week 1: Introduction**

- 8/22 Introduction to the *History of Modern Science*  
 8/24 A Greek Prelude  
 Reading: HHS Reader, Ch. 1: 1.2, 1.3, 1.4

**Week 2: The Scientific Revolution**

- 8/29 The Scientific Revolution  
*Reading:* Bowler and Morus, Ch. 2  
 HHS Reader, Ch. 2: 2.1.1, skim 2.1.2  
 HHS Reader, Ch. 4: 4.1, 4.2, 4.3  
 8/31 The Scientific Revolution  
 HHS Reader, Ch. 4: 4.4, 4.5,  
 Ch. 5: 5.1, 5.2, 5.3, 5.4, 5.5, 5.6

**Week 3: The Enlightenment**

- 9/05 Science and the Enlightenment  
*Reading:* Bowler and Morus, Ch. 14  
 HHS Reader, Ch. 6: 6.1, 6.2, 6.3, 6.6, 6.7, 6.8,  
 9/07 Science and Gender  
*Reading:* Bowler and Morus, Ch. 21

HHS Reader, Ch. 6: 6.9

#### **Week 4: The Chemical Revolution and the Conservation of Energy**

9/12 The Chemical Revolution

*Reading:* Bowler and Morus, Ch. 3

HHS Reader, Ch. 6: 6.6, 6.5,

Ch. 7: 7.10, 7.11

9/14 Conservation of Energy

*Reading:* Bowler and Morus, Ch. 4

HHS Reader, Ch. 8: 8.1, 8.2, 8.3, 8.4, 8.5

#### **Week 5: Geology and the Age of the Earth**

9/19 The Age of the Earth

*Reading:* Bowler and Morus, Ch. 5

HHS Reader, Ch. 7: 7.1, 7.2, 7.5

9/21 Science and Religion

*Reading:* Bowler and Morus, Ch. 15

[Reading Quiz #1](#)

#### **Week 6: The Darwinian Revolution**

9/26 Darwin and the *Origin of Species*

*Reading:* Bowler and Morus, Ch. 6 and 7

HHS Reader, Ch. 7: 7.3, 7.4, 7.6,

Selections from the *Origin of Species* (Darwin Online)

9/28 Darwin and Religion

*Reading:* Bowler and Morus, Ch. 15

Wilberforce, Review of Darwin, *On the Origin of Species*

Owen, Review of Darwin, *On the Origin of Species*

#### **Week 7: Genetics and Eugenics**

10/03 Mendelian Genetics

*Reading:* Bowler and Morus, Ch. 8

HHS Reader, Ch. 9: 9.1, 9.2

10/05 Eugenics and Intelligence Testing

*Reading:* Bowler and Morus, Ch. 18

HHS Reader, Ch. 7: 7.7, 7.8

Ch. 11: 11.1

#### **Week 8: Cosmology and Medicine**

10/10 Cosmology and the Universe Transformed

*Reading:* Bowler and Morus, Ch. 12

10/12 The Rise of Modern Medicine: Race and Gender

*Reading:* Bowler and Morus, Ch. 19

[Reading Quiz #2](#)

#### **Week 9: Examination #1**

10/17 Examination #1

10/19 Film: The Day after Trinity

[Examination #1](#)

#### **Week 10: The Rise of Modern Physics and Continental Drift**

- 10/24 Film: *The Atomic Bomb*  
 10/26 Einstein and the New Physics  
*Reading:* Bowler and Morus, Ch. 11  
 HHS Reader, Ch. 8: 8.7, 8.9  
 Ch. 9: 9.3, 9.4,

### **Week 11: The Bomb and Race**

- 10/31 Big Science and the Atomic Bomb  
*Reading:* Bowler and Morus, Ch. 20  
 HHS Reader, Ch. 9: 9.5, 9.6  
 11/02 Hiroshima and Nagasaki [Reading Quiz #3](#)  
*Reading: Hiroshima survivor accounts*

### **Week 12: The Double Helix and Gender**

- 11/07 The Race to the Double Helix  
*Reading:* Bowler and Morus, Ch. 8 (pp. 205-212)  
 Francis Crick, Letter to 9 year old son (online)  
 HHS Reader, Ch. 9: 9.7, 9.8, 9.9  
*Watson, The Double Helix, re: Rosalind Franklin (online)*  
 11/09 The Race to the Double Helix  
 Film: *The Double Helix*

### **Week 13: Continental Drift, Ecology, and Environmentalism**

- 11/14 Continental Drift  
*Reading:* Bowler and Morus, Ch. 10  
 HHS Reader, Ch. 10: 10.4  
 11/16 The Rise of Ecology and Environmentalism [Reading Quiz #4](#)  
*Reading:* Bowler and Morus, Ch. 9  
 HHS Reader, Ch. 11: 11.4

### **Week 14: The Fate of the Earth**

- 11/21 Global Climate Change [Optional Rough Draft due](#)  
 11/23 Thanksgiving

### **Week 15: Environment and Gender**

- 11/28 Rachel Carson and *Silent Spring*  
*Reading:* HHS Reader, Ch. 8: 8.8  
 HHS Reader, Ch. 10: 10.5  
 HHS Reader, Ch. 11: 11.4  
 11/30 Conclusion and Review [Reading Quiz #5 \(make up\)](#)

### **Week 16**

- 12/05 Paper Presentations [Final Paper Due](#)  
 12/07 Paper Presentations

- Examination #2 [Examination #2](#)  
*See final exam schedule.*