HISTORY OF MODERN SCIENCE
HIST3432, Spring 2009

Scott A. Gavorsky
T-Th, 12:30pm-1:45pm
LeConte Hall 221
Gavorsky@uga.edu

Office: LeConte 239
Hours: T 11:00am-12:00pm
Th 2:00pm-3:00pm
Phone: (706) 542-2053

Few fields of human activity are more associated with the rise of the modern world—and specifically the Western modern world—than science. This course examines the development of science in the West from its origins in the sixteenth century to the current day. While we will be tracking the major scientific advances, the major focus will be on how science both reflected and impacted the societies in which it developed.

COURSE SYLLABUS

Please Note: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

REQUIRED TEXTS

John Gribben, *The Scientists: A History of Science Told through the Lives of Its Greatest Inventors*, ISBN: 9780812967883
Nina Burleigh, *Mirage: Napoleon's Scientists and the Unveiling of Egypt*, ISBN: 9780060597689
Mary Wollenstonecraft Shelley, *Frankenstein*, ISBN: 9780553212471
Edward J. Larson, *Summer of the Gods: The Scopes Trial and America's Continuing Debate on Science and Religion*, ISBN: 9780465075102
James D. Watson, *The Double Helix*, ISBN: 9780743216302

Recommended—Kate Turabian, *A Manual for Writers of Research Papers, Theses and Dissertations*, 7th edition (ISBN 9780226823379)

WebCT: There is a WebCT site for this course. Most of the readings not from the texts above will be available through the WebCT site. Develop the habit of checking WebCT on a regular basis

COURSE REQUIREMENTS

1) ***All academic work must meet the standards contained in UGA's "A Culture of Honesty." Each student is responsible to inform themselves about those standards before performing any academic work.***

2) Class Participation and Attendance: The class is designed around the open discussion of assigned readings; students are expected to come to class having completed all readings and prepared to discuss the issues they raise. Students can expect 100-125 pages of reading per week. ***Any student with more than two (2) unexcused absences will be penalized one letter grade on***

attendance per additional absence. It is the student's responsibility to explain any absence to the instructor at the earliest opportunity.

3) Written Assignments: Written assignments for this course should be prepared using a proper academic format; I strongly recommend the Turabian *Manual for Writers of Research Papers*. Assignments will be graded on both content (accuracy, argument and evidence) and writing (grammar, syntax, clarity, structure and style). ***All overdue written assignments will be penalized 1 grade (B+ to B, etc.) per day (including weekends and holidays).***

4) Science Scavenger Hunt: Students will prepare a short (2 page) encyclopedia-style entry and a reference bibliography (10 primary sources and 10 secondary sources) on a topic from selected from a list. The assignment is designed to introduce students to the source material for the investigation of science and to prepare students for the research needed for the final paper.

5) Short Paper: Students will prepare two short (5-6 page) argumentative papers analyzing the conception of science in *Frankenstein* and in *Summer of the Gods*. The assignment will give you experience working with sources to develop an analytical, causal essay.

6) Research Paper: All students will write one (1) research paper of 10-12 pages examining a topic of the student's choosing after consultation with me. A short prospectus (3 pages) outlining a preliminary argument and preliminary bibliography with a minimum of four primary sources and three secondary sources. The final paper will be due at the end of the exam period for this course.

GRADING

Class Participation:	20%
Science Scavenger Hunt:	15%
Short Paper # 1:	15%
Short Paper # 2:	15%
Final Prospectus:	10%
Final Research Paper:	25%

CLASS READINGS

Week One: Class Introduction

T, 8 Jan: Class Introduction

Week Two: What is Science?

T, 13 Jan: *The Scientists*, introduction
Karl R. Popper, "Science: Conjectures and Refutations" [WebCT]
Thomas Kuhn, selections from *The Structure of Scientific Revolutions* [WebCT]

Th, 15 Jan: Nathan Sivin, "Why the Scientific Revolution Did Not Take Place in China—or Didn't It?" [WebCT]
Thomas Goldstein, "The Gift of Islam" [WebCT]

Week Three: The Origins of Modern Western Science

T, 20 Jan: *The Scientists*, chaps. 1 & 2
Francis Bacon, selection from *On Experimental Science* [WebCT]

Th, 22 Jan: *The Scientists*, chap. 3
Galileo, "Letter to the Grand Duchess Christina of Tuscany" [WebCT]

Week Four: Newtonian Revolution

T, 27 Jan: *The Scientists*, chap. 4 & 5

Th, 29 Jan: Newton, selections from *Mathematical Principles of Natural Philosophy* [WebCT]
The Scientists, chap. 6

Week Five: The Enlightenment

T, 3 Feb: *The Scientists*, chap. 7
Immanuel Kant, selections from *What is Enlightenment?* [WebCT]
Jean-Jacques Rousseau, selections from *Émile* [WebCT]

Th, 5 Feb: ***SCAVENGER HUNT PAPER DUE AT BEGINNING OF CLASS***
The Scientists, chap. 8

Week Six: Science and the Revolutionary State

T, 10 Feb: *Mirage*, chaps. 1-6

Th, 12 Feb: *Mirage*, chaps. 7-12 & Epilogue

Week Seven: Towards Modern Science

T, 17 Feb: *The Scientists*, chaps. 8 & 11

Th, 19 Feb: *The Scientists*, chap. 12

Week Eight: The Dismal Sciences: Economics, History and Industrialization

T, 24 Feb: Thomas Malthus, selections from *An Essay on the Principles of Population* [WebCT]
David Ricardo, selection from *The Iron Law of Wages* [WebCT]

Th, 26 Feb: Karl Marx and Friedrich Engles, selections from *The Communist Manifesto* [WebCT]
Richard Dugdale, "Hereditary Pauperism as Illustrated in the 'Juke' Family" [WebCT]

Week Nine: Playing God: The Romantic Impression of Science
T, 3 Mar: *Frankenstein*

Th, 5 Mar: *Frankenstein* (cont.)
Short Paper on the Science of Frankenstein due at Beginning of Class

SPRING BREAK: March 9 – March 13.

Week Ten: Darwin and Evolution
T, 17 Mar: *The Scientists*, chap. 9
Darwin, selections from *The Origin of the Species* and *The Descent of Man* [WebCT]

Th, 19 Mar: *The Scientists*, chap. 14
Francis Galton, "Eugenics: Its Definition, Scope and Aims" [WebCT]

Week Eleven: Science and the Totalitarian Impulse
T, 24 Mar: **FINAL PAPER PROSPECTUS DUE AT BEGINNING OF CLASS**
Karl Pearson, selections from *National Life from the Standpoint of Science* [WebCT]
Hitler, selections from *Mein Kampf* [WebCT]

Th, 26 Mar: Stanley Milgram, selections from *Obedience to Authority* [WebCT]
The Milgram Experiment video

Week Twelve: Science and Religion in the Modern World
T, 31 Mar: *Summer of the Gods*, part I

Th, 2 Apr: *Summer of the Gods*, part II

Week Thirteen: Science and Religion in the Modern World II
T, 7 Apr: *Summer of the Gods*, part II

Th, 9 Apr: **Short Paper on *Summer of the Gods* due at the beginning of class.**
Hawaii Five-O, "Once Upon a Time" [in-class movie]

Week Fourteen: The Hero and the Terror: Science in the 1950s and the 1960s

T, 14 Apr: *The Scientists*, chaps. 11 & 15

Th, 16 Apr: Rachel Carson, selections from *The Silent Spring* [WebCT]
Smallpox Eradication Project Oral Histories [WebCT]

Week Fifteen: Science—Collaborative or Cutthroat?

T, 21 Apr: Watson, *The Double Helix*
DEADLINE FOR SUBMITTING FINAL PAPER DRAFTS FOR COMMENT

Th, 23 Apr: Watson, *The Double Helix* (cont.)
Scenes from *And the Band Played On…*

Week Sixteen: Looking Backwards: Science in the 21st Century

T, 28 Apr: Michael Crichton, speech on Consensus Science

FINAL PAPER DUE BY END OF EXAM PERIOD