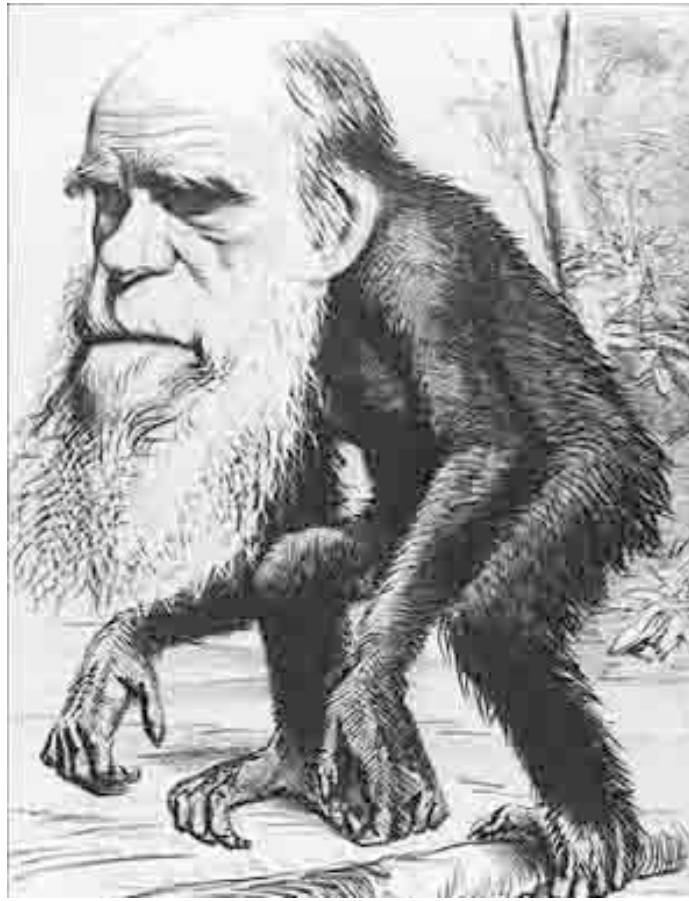


The Darwinian Revolution

HIST 282CS – Fall 2017

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Charles Darwin's theory of evolution through natural selection brought about one of the greatest intellectual and cultural revolutions in the modern era. It profoundly altered the way we think of science, religion, philosophy – our modern society. We will attempt to integrate a study of evolution (science) with a study of society (humanities) to better understand the social, cultural, and scientific contexts of Darwin's theory. The first part of the course will focus on Darwin's ideas, the manner in which he came to them, and his argument's explanatory power and weaknesses. The second part of the course will explore the diverse ramifications of Darwin's theory, including the modern debates in animal experimentation, epigenetics, biotechnology, sociobiology, and other tricky contemporary issues. By studying Darwin's ideas within their broader social, cultural, and scientific contexts, you will learn a base of knowledge that will enable you to critically analyze science, and enter, with an informed judgment, into the fascinating debate taking place today concerning biology's increasing role in our society.

REQUIRED TEXTS

Mary Shelley, *Frankenstein*

David Quammen, *The Reluctant Mr. Darwin*

David Quammen, *On the Origin of Species: The Illustrated Edition*

H. G. Wells, *The Island of Dr. Moreau*

Richard Lewontin, *Biology as Ideology: The Doctrine of DNA*

Readings Online

In addition to the above texts, we will also assign extra readings, denoted on your syllabus by an *. These can be found on my website (mountainsandminds.org). You are required to print the material and bring it to class during the days in which it is discussed. Not all readings have been added to the syllabus or my webpage ... yet.

Mechanics:

The emphasis of the course – and thus your grade – will be on reading and critically analyzing Darwin's theory and its ramifications. **THUS, IT IS IMPERATIVE THAT YOU ATTEND CLASS.** You must have the readings completed before class to contribute meaningfully to class discussion. Each week, you may be responsible for small in-class or take-home assignments that may include written analysis of the readings. A comprehensive final exam will be given on December 15th, from 12:00 – 1:50 pm.

In addition to studying the Darwinian Revolution, this is also a Contemporary Issues in Science (CS) course. Many of the issues and themes dealt with by modern scientists, especially biologists and social scientists, are rooted squarely within the Darwinian Revolution of the nineteenth century. You will be able to trace common themes – such as reductionism, the impact of social forces on science, and the impact of science on broader society – throughout the course. You will need to learn to recognize these themes, both within class lectures and within the assigned readings. You will then be expected to write a three-page paper, supported with material from class as well as some additional sources (more on this when paper assignments are handed out), focusing on one of these themes as it relates to the content of this course. This assignment is due Tuesday, November 21st in class.

Grades:

In-Class Tests on Texts: 25%

In-Class Quizzes and Take-Home assignments: 25%

CS Paper: 25%

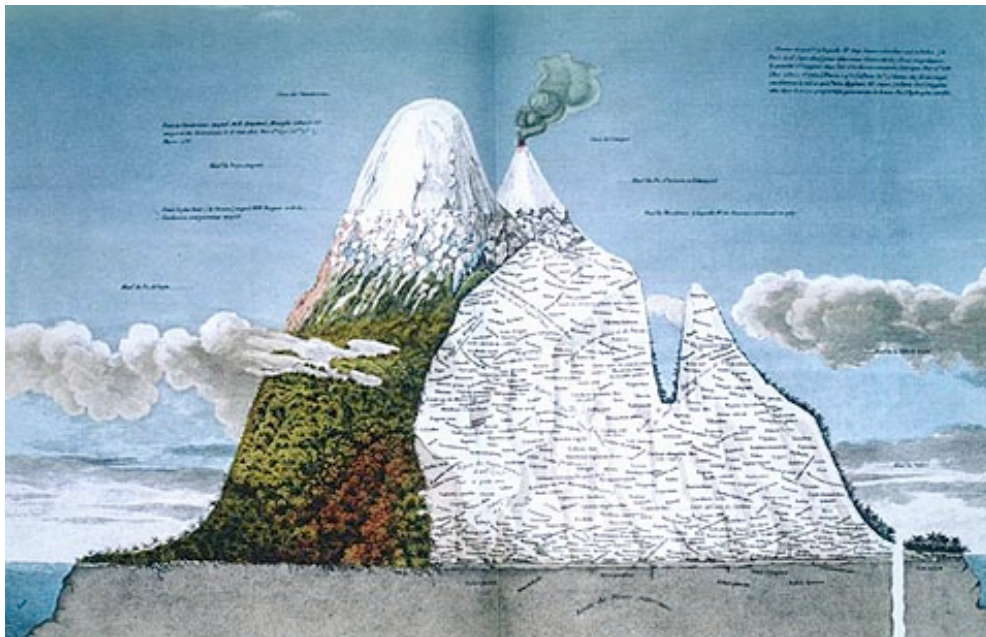
Final Exam: 25%



Goals for the Course:

In addition to studying evolutionary theory and the history of science, this course will also help develop your scientific and critical thinking skills. Throughout the semester, we will emphasize:

- *the ability to understand and evaluate opposing viewpoints.* Differing viewpoints are common in science. Making an educated judgment requires a clear understanding of various claims and an ability to discern which one is most valid.
- *the ability to assess the quality of evidence and discern general patterns.* People may have different viewpoints on scientific issues, and the quality of evidence supporting these views can vary considerably. Scientific thinking entails evaluating the caliber of evidence and developing plausible conclusions based on that material.
- *to understand the value and role of science in society.* Science does not occur in a bubble. It affects, and is affected by, society. This course will demonstrate some of the numerous ways in which evolutionary theory has influenced society, and how society has influenced evolutionary theory and the biological sciences.
- *to show a healthy skepticism toward science and scientific claims.* Unlike other ways of knowing the world, skepticism and the questioning of assumptions make up an essential part of the scientific process. You will develop a deeper understanding of what science can and can't do; what science is and what it isn't; which types of questions science can answer and which types it can't; and finally, what is valid science and what is not.
- *an ability to discuss these topics in front of an engaged intellectual community of scholars.* Often times, knowing something is the easy part. Being able to explain that knowledge and communicate your viewpoint within a framework that others can understand and trust is often much more difficult.
- *Don't mistake belief for knowledge (or, don't always believe what you think).* Be skeptical, particularly of your own beliefs.



TENTATIVE SCHEDULE OF TOPICS, READINGS, AND ASSIGNMENTS

SECTION I: Science and the History of Science

WEEK ONE

T Aug 29: Introduction; Syllabus

Th Aug 31: What is Science? What is the History of Science?

Readings: *Selections from Hatton and Plouffe, *Science and its Ways of Knowing*:
“General Introduction”; “Part I: On Scientific Method”
Carl Sagan, “Can We Know the Universe?”
Robert Pirsig, “On Scientific Method,” pp. vii-x, 1-10.

WEEK TWO

T Sept 5: Case Study I: Gender and Science

Readings: *Londa Schiebinger, “Gender and Natural History”

Th Sept 7: Case Study II: Newton and the Reductionist Program in Science

Readings: Mary Shelley, *Frankenstein*.

Section II: The Roots of Darwin’s Ideas

WEEK THREE

T Sept 12: Case Study III: Victor and the Reductionist Program in Biology

Th Sept 14: **Test** and Discussion on *Frankenstein*

Readings: Mary Shelley, *Frankenstein*.

WEEK FOUR

T Sept 19: Humboldt and Space; Lyell and Time

Readings: Darwin, *On the Origin of Species*: “Introduction” by David Quammen, pp. v-xii;
“Introduction,” pp. 1-13; “Appendix: An Historical Sketch,” pp. 514-525.

Th Sept 21: Adam Smith, Thomas Malthus, and the Social Construction of Evolution

Readings: *Malthus, *An Essay on the Principles of Population*.

WEEK FIVE

T Sept 26: Voyage of the HMS *Beagle*

CS Paper Assignment Handout and Discussion

Readings: Quammen, *Reluctant Mr. Darwin*, pp. 1-121.

Th Sept 28: Darwin after the *Beagle*

Readings: Quammen, *Reluctant Mr. Darwin*, pp. 122-288.

WEEK SIX

T Oct 3: **Test** and Discussion on Quammen, *Reluctant Mr. Darwin*

Readings: Quammen, *Reluctant Mr. Darwin*.

Th Oct 5: Darwin in Four Chapters

Readings: Darwin, *On the Origin of Species*, pp. 14-140.

Section III: Darwin's Dangerous Idea

WEEK SEVEN

T Oct 10: LABORATORY – Natural Selection – **SUB Ballroom A**

Readings: Darwin, *On the Origin of Species*, pp. 14-140.

Th Oct 12: Biogeography: Across Oceans and Up Mountains

Readings: Darwin, *On the Origin of Species*, pp. 338-422.

WEEK EIGHT

T Oct 17: Whewell's "Consilience of Induction"; or "One Long Argument"; or "No Longer a Savage Looking at a Ship"

Readings: Darwin, *On the Origin of Species*, "Recapitulation and Conclusion," pp. 482-513.

Th Oct 19: **Test** and Discussion on Darwin's *On the Origin of Species*

Section IV: Reductionism in Modern Biological Thought

WEEK NINE

T Oct 24: Review of the *Origin*; Mendel and the Modern Synthesis

Th Oct 26: Vivisection

Reading: H. G. Wells, *The Island of Dr. Moreau*.

WEEK TEN

T Oct 31: **Test** and Discussion on H. G. Wells

Readings: H. G. Wells, *The Island of Dr. Moreau*.

Th Nov 2: Social Darwinism and Eugenics

WEEK ELEVEN

T Nov 7: IQ Tests and Montana Eugenics

Th Nov 9: **NO CLASS – HSS ANNUAL MEETING**

WEEK TWELVE

T Nov 14: Human Evolution

Th Nov 16: Epigenetics and CRISPR Technology

Readings: *Michael Specter, “How the DNA Revolution is Changing Us,” *National Geographic*, August 2016.

*John Harris and Marcy Darnovsky, “Pro and Con: Should Gene Editing Be Performed on Human Embryos,” *National Geographic*, 2016.

WEEK THIRTEEN

T Nov 21: **CS Papers Due**

Th Nov 23: **NO CLASS – THANKSGIVING HOLIDAY**

Readings: Lewontin, *Biology as Ideology*, pp. 1-57.

WEEK FOURTEEN

T Nov 28: Sociobiology and/or Evolutionary Psychology

Th Nov 30: **Test** and Discussion on *Biology as Ideology*

Readings: Lewontin, *Biology as Ideology*, pp. 61-123

WEEK FIFTEEN

T Dec 5: Darwin in Context; Final Thoughts

Readings: *Quammen, “Was Darwin Wrong?”

Th Dec 7: Final Exam Review

Dec 15: 12:00-1:50 – **FINAL EXAM**