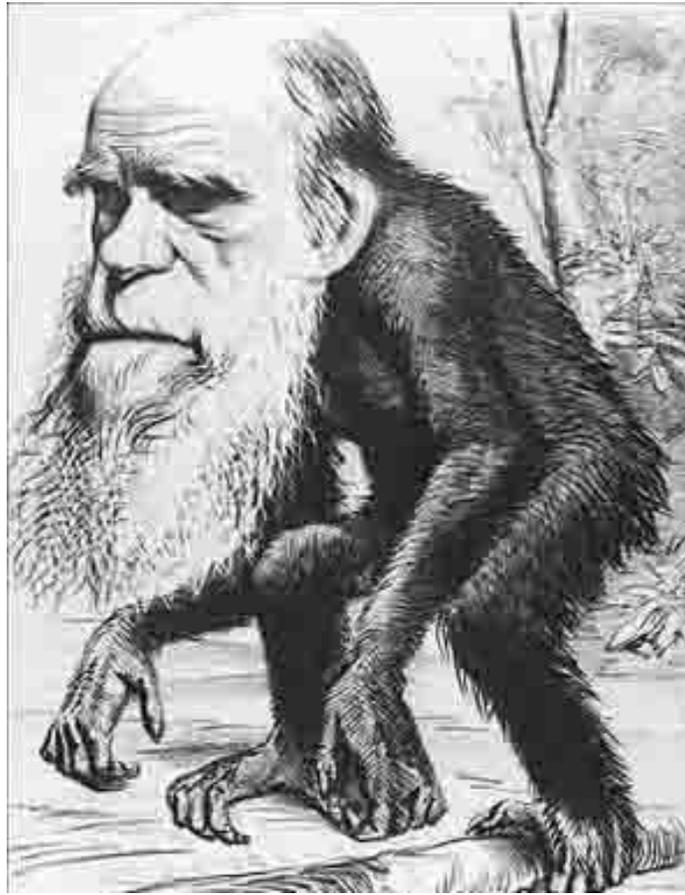


The Darwinian Revolution

HIST 282CS – Fall 2017

Michael S. Reidy
2-170 Wilson Hall
mreidy@montana.edu
Office Hours: Wed 2:00 – 4:00

Kirke Elsass
2-169 Wilson Hall
kirke.david@gmail.com
Office Hours: M 10 – 11, Th 12 – 1



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 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.

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 13th, from 2:00 to 3:50.

CS Assignment:

In addition to studying the Darwinian Revolution, this is also a Contemporary Issues in Science (CS) course. According to the MSU Bulletin, Contemporary Issues in Science courses are focused “on the ways in which science contributes to the study of significant problems in the contemporary world, and can help individuals and society make informed decisions about these issues.” In order to do this, CS courses examine “the history of particular contemporary scientific issues and the ways in which truths or assumptions about these issues have changed over time. They might examine the social and political consequences of scientific and technological discoveries, or ethical issues arising from their use, or how science and scientific methods can aid public, personal, and professional decision-making.”

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.

Much more information will be revealed as the course progresses, particularly in the form of a detailed assignment sheet.

Important CS Paper and Writing Assignment Dates

9/22 — Have a subject selected

Week of 9/23 — First self-scheduled writing group appointment

9/29 — One-paragraph proposal due on D2L by 10 p.m.

10/20 — Outline (w/ sources) due on D2L by 10 p.m.

Week of 10/21 — Second self-scheduled writing group appointment

11/10 — First draft due on D2L by 10 p.m.

Week of 11/11 — Third self-scheduled writing group appointment

11/26 — Final submission due on D2L by 9:25 a.m.

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 27: Introduction; Syllabus

Th Aug 29: What is Science? What is the History of Science?

In-Class Writing Activity

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 3: Case Study I: Gender and Science

In-Class Writing Activity

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

Th Sept 5: 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 10: Case Study III: Victor and the Reductionist Program in Biology

Th Sept 12: **Test** and Discussion on *Frankenstein*

CS Paper Assignment Handout

Readings: Mary Shelley, *Frankenstein*.

WEEK FOUR

T Sept 17: Humboldt and Space; Lyell and Time

Introduction to the Writing Assignment

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 19: Adam Smith, Thomas Malthus, and the Social Construction of Evolution

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

WEEK FIVE

T Sept 24: Voyage of the HMS *Beagle* and Post-*Beagle* Research

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

Th Sept 26: **Self-Scheduled Group Writing #1 [NO REGULAR CLASS MEETING]**

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

****Writing Due: Proposal Uploaded to D2L by 10 p.m. Sunday, 9/29**

WEEK SIX

T Oct 1: **Test** and Discussion on Quammen, *Reluctant Mr. Darwin*

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

Th Oct 3: Darwin in Four Chapters

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

Section III: Darwin's Dangerous Idea

WEEK SEVEN

T Oct 8: LABORATORY – Natural Selection

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

Th Oct 10: Biogeography: Across Oceans and Up Mountains

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

WEEK EIGHT

T Oct 15: 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 17: **Test** and Discussion on Darwin's *On the Origin of Species*

Section IV: Reductionism in Modern Biological Thought

****Writing Due: Outline Uploaded to D2L by 10 p.m. Sunday, 10/20**

WEEK NINE

T Oct 22: **Self-Scheduled Group Writing #2 [NO REGULAR CLASS MEETING]**

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

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

WEEK TEN

T Oct 29: Vivisection

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

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

WEEK ELEVEN

T Nov 5: Social Darwinism and Eugenics

Th Nov 7: Human Evolution

****Writing Due: Full Draft Uploaded to D2L by 10 p.m. Sunday, 11/10**

WEEK TWELVE

T Nov 12: **Self-Scheduled Group Writing #3 [NO REGULAR CLASS MEETING]**

Th Nov 14: 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 19: Sociobiology and Evolutionary Psychology

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

Th Nov 21: **Test** and Discussion on *Biology as Ideology*

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

WEEK FOURTEEN

T Nov 26: **CS Papers Due By 9:25 a.m. + In-Class Reflection**

Th Nov 28: NO CLASS – THANKSGIVING HOLIDAY

WEEK FIFTEEN

T Dec 3: Darwin in Context; Final Thoughts

Readings: *Quammen, “Was Darwin Wrong?”

Th Dec 5: Final Exam Review

Dec 13: **FINAL EXAM** 2:00-3:50

