

Darwin and the Politics of Evolution

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1. Course Description

Charles Darwin's *On the Origin of Species by Means of Natural Selection*, generally shortened to *The Origin of Species*, is one of the two or three most influential science books ever published. But unlike the case with other science books, *The Origin*, published in 1859, is also of profound political importance. Part of this political importance—the implications of Darwin's theory for religious explanations of the diversity of life—is well understood by all socially aware citizens. But there is much less awareness of the political implications of controversies within the science of evolutionary biology founded by Darwin.

In this class I will explicate and explore both the "outside" and "inside" political implications of the science launched by the *Origin*, and ask the students to evaluate them.

2. Required Readings

- Charles Darwin, *The Origin of Species by Means of Natural Selection*, first edition, (Barnes and Noble Classics, 2004) [first published 1859]
- Jerry Coyne, *Why Evolution is True* (Viking, 2009)
- Phillip Johnson, *Darwin on Trial*, second edition, (InterVarsity Press, 1993)
- David Prindle, *Stephen Jay Gould and the Politics of Evolution* (Prometheus Books, 2009)
- A package of readings, available as Web content from Great River Technologies:
To purchase the material from the site:
 - a. Go to www.grtep.com
 - b. Click on the "Purchase Access Codes" link in the "Register" box
 - c. Choose "University of Texas at Austin/Darwin & the Politics of Evolution"
 - d. Add the publication to the cart by clicking the + sign
 - e. Click "proceed to checkout"
 - f. Enter credit card information and register the publication

3. Course Requirements

Each of the three assignments in this class will be counted equally; that is, each will count one-third toward the final grade. At the end of the semester, the three numerical scores will be averaged, and final grades will be assigned on the basis of the conventional scale: 92.3 and above will receive an "A" in the course, 90 to 92 will receive an "A minus," 88 to 89.7 will receive a "B plus," 82.3 to 87.7 will receive a "B," 80 to 82 will receive a "B minus," 78 to 79.7 will receive a "C plus," 72.3 to 77.7 will receive a "C," 70 to 72 will receive a "C minus," 68 to 69.7 will receive a "D plus," 62.3 to 67.7 will receive a "D," 60 to 62 will receive a "D-minus, and below 60 will receive an "F." Anyone missing a grade (that is, anyone failing to take a test or turn in an essay) will also receive an "F." I may make some small adjustments in these averages to reflect the quality of contribution to class discussion.

The three assignments are due **sessions 10, 20 and 31**.

For your three assignments, you may choose to write two essays and take one test, or take two tests and write one essay. It is up to you to decide how you mix the tests and essays, and in what order you choose to do them. You may not, however, "load up" by turning in an essay at the same time that you take a test, thus getting two-thirds of the assignments out of the way in the same session.

ESSAYS

Essays are due at the beginning of the session the same day as the tests: **sessions 10, 20 and 31**, although you may choose to turn in your final essay early. Each essay must be typed, double-spaced, and no more than five letter-size pages long.

Topic, first essay: Summarize the important points of Darwin's argument in *The Origin of Species*. Then evaluate TWO of the sub-arguments Darwin makes in support of his theory. Is his reasoning sound? Is his use of evidence sound? In general, are you persuaded by his argument? If you mention a specific argument, it would be a good idea to cite a page in Darwin's book. It might also be a good idea to incorporate "scientific method" as I discussed it in lecture, and as Stephen Jay Gould discussed it in "The Freezing of Noah" in your reading packet.

Topic, second essay: Pick ONE of the controversies we have discussed in this section of the course: the pace of evolution, sociobiology, or the question of whether evolution is progressive. Summarize the controversy, that is, summarize the issue as the people on each side view it. Then evaluate the controversy, that is, explain why you agree with one side or the other. (You may come down on neither side, concluding that it is impossible to choose, but if you do, you must explain why). In your evaluation, be sure that you discuss both the arguments used by each side, and each side's use of evidence. Do not forget to include some of the assigned reading in your discussion.

Topic, third essay: Evaluate modern evolutionary theory and the theory of “Intelligent Design.” Pick at least two arguments in favor of Darwinist theory and evaluate them. Pick at least two arguments in favor of ID and evaluate them. (One of your pro-Darwinist arguments can be contra-ID. One of your pro-ID arguments can be contra-Darwinism).

By asking you to “evaluate,” I mean discussing and judging the theory’s assumptions and logical structure, and also discussing and judging the theory’s use of evidence.

Do not forget to include material from the assigned reading in your essay: from Coyne, Johnson, Behe, and Dembski. And also, of course, you will be expected to bring in relevant material from the lectures.

TESTS

There are three tests in this class, given **sessions 10, 20 and 31**. Each test consists of two parts. In the first part, there will be twenty-five multiple-choice questions, dealing with concepts to be listed shortly. A correct answer on each of these counts two points. In the second part, you will be given a group of ten words or phrases, also chosen from the lists provided below. You will be asked to define each word or phrase, and then explain why it is important (or significant) to the study of the politics of evolution, all in sixty or fewer words. A correct definition is worth two points, and correct explanation is worth three points, for a total of five points per term. Thus, each test offers a possible perfect score of one hundred, fifty from the multiple-choice questions and fifty from the short-answer questions.

Because it is impossible to predict the direction of every conceptual discussion ahead of time, I may make a few additions to and subtractions from the following list of concepts during the course of the semester. Basically, however, the following list contains all, or almost all, of the concepts that you will be expected to know.

Because I may slightly fiddle with the concept list over the course of the semester, you should remember that the “official” list of concepts that might appear on a test is the one that I put on the screen during lecture. Thus, the concept list on this syllabus is advisory only, and may not be complete.

CONCEPTS, FIRST TEST

Concepts from the reading:

Darwin, *Origin*: varieties; “endless forms most beautiful”

Paley, *Natural Theology*: “the watch must have had a maker”

Gould, “The Freezing of Noah:” William Buckland, the diluvian theory

Genesis: “Let there be light”

Prindle, *Stephen Jay Gould*: comprehensive realism; historical science; reductionism; Left-Wing Social Darwinism

Concepts from the lectures: essentialism; magic; pareidolia; teleology; creation myth; empiricism; induction; deduction; implication; replication; premise; equivocation; *ad hominem*; spurious correlation; propaganda; argument from design; HMS Beagle; Thomas Malthus; uniformitarianism; Alfred Russel Wallace; fecundity; “struggle;” adaptation; natural selection; evolution; homology; Asa Gray; Social Darwinism; Herbert Spencer; *Archaeopteryx*; St. George Mivart; exaptation; Lord Kelvin

CONCEPTS, SECOND TEST

Concepts from the reading:

Gould, “Episodic Evolutionary Change:” “the trade secret of paleontology,” stasis
Dawkins, *Blind Watchmaker*: constant speedism; *Coelacanth*; “Biblical Creation”
Prindle, *Stephen Jay Gould*, Chapter 3 (pp. 81-103): critical elections
Barash, *Whisperings Within*: Huntington’s chorea; Why is sugar sweet?
Somit and Peterson, *Darwinism, Dominance, and Democracy*: hierarchy; “the most fundamental question of all”
Gould, “Our Natural Place:” zoocentrism
Pinker, *Blank Slate*: The Pronoun in the Machine; “the triumph of sociobiology”
Prindle, *Stephen Jay Gould*, Chapter 4: adaptationist program; spandrel
Gould, *Wonderful Life*: Burgess Shale; replaying life’s tape; *Wiwaxia*
Morris, *Life’s Solution*: convergence

Concepts from the lectures:

gene; allele; Gregor Mendel; genotype; phenotype; DNA; Modern Synthesis; Sexual Selection; R. A. Fisher; The Central Dogma; methodology; phyletic gradualism; fossil; punctuated equilibrium; creationism; naturalistic fallacy; politically left-wing; politically right-wing; SSSM; Richard Dawkins; sociobiology; evolutionary psychology; Science for the People; Pleistocene era; primeval soup; merit; chance; the “Age of Bacteria;” “contingency”

CONCEPTS, THIRD TEST

Concepts from the reading:

Behe, “Molecular Machines:” cilia; “purposeful arrangement of parts;” “we should take a lesson from physics”
Johnson, *Darwin on Trial*: peacock and peahen; Cambrian Explosion; *Teaching Science*; Karl Popper
Dembski, “Intelligent Design as a Theory of Information:” CSI; Actualization-Exclusion-Specification triad
Coyne, *Why Evolution is True*: “the fitter, not the fittest;” *Ambulocetus*; recurrent laryngeal nerve; Seymour Island; Lucy; lactose intolerance
Prindle, *Stephen Jay Gould*, Chapter 6: *Rhagoletis pomonella*; “What creates the fit?”

Concepts from the lectures: “but God guided the process;” “wall of separation;” *Engel v. Vitale*; Scopes Trial; Texas State Republican Platform; Discovery Institute; National Center for Science Education; modernism; secular; First Amendment; Secular Humanism; *Lemon v. Kurtzman*; *The Genesis Flood*; *Epperson v. Arkansas*; *Edwards v. Aguillard*; *Tammy Kitzmiller v. Dover Area School District*; “Intelligent Design;” irreducible complexity; naturalism; A Designometer?; retrodiction; “provisionally true;” Madagascar hawk moths; Trinidad guppies; *Tiktaalik*; sFltI

Miscellaneous Useful Information

A. Study questions that may help you understand what is important about the terms/phrases/concepts:

1. How does this term help us to understand a causal, moral, or interpretive argument in the lectures or reading?
2. How does this term illustrate/exemplify an important principle discussed in class?

B. Answers to common questions about the tests

1. Is it important to know dates? YES; KNOW THE DATES OF IMPORTANT BOOKS (*ORIGIN OF SPECIES*, 1859), COURT DECISIONS (*LEMON V. KURTZMAN*, 1971) AND THEORIES (PUNCTUATED EQUILIBRIUM, 1972).
2. Will I be penalized if I go over the 60 word limit? YES
3. Must I write in complete sentences? NO, BUT IF WE CANNOT UNDERSTAND YOUR ANSWER, IT IS WRONG

4. Class Schedule and Reading Guide

I. The *Origin of Species*: context, meaning, politics

- Reading:
1. Excerpts from Ch. One of the Book of *Genesis*, in reading package
 2. Extracts from William Paley's *Natural Theology*, reading package
 3. Stephen Jay Gould, "The Freezing of Noah," reading package
 4. Charles Darwin, *On the Origin of Species by Natural Selection*, first edition, chapters 1 thru 6, 11, 13 (pp. 343-361 only), 14
 5. Prindle, *Stephen Jay Gould and the Politics of Evolution*, Chapter 2

<u>Session</u>	<u>Topic</u>
1	Introduction to the politics of evolution
2	Reasoning, argument, propaganda
3	Darwin's historical context
4	Movie: "Creation" (2009)
5	"Creation," continued
6	Structure of the theory
7	Documentary: "Life, Darwin, and Everything"
8	Reception of the <i>Origin</i> during the nineteenth century
9	Test Review
10	FIRST TEST/FIRST ESSAY DUE

II. Modern controversies within evolutionary biology

- Reading: 1. Gould, "The Episodic Nature of Evolutionary Change" in reading package
 2. Richard Dawkins, *The Blind Watchmaker*, Chapter 9, in reading package
 3. David Prindle, *Stephen Jay Gould and the Politics of Evolution* Chapter 3, pp. 81-103

[The above three readings address the topic of the pace of evolution].

4. David Barash, *The Whisperings Within*, Chapter 2 (reading package)
 5. Albert Somit and Steven Peterson, *Darwinism, Dominance, and Democracy*, Chapter 5 (reading package)
 6. Peter Corning, "The Sociobiology of Democracy: Is Authoritarianism in Our Genes?" (this selection is a book review of *Darwinism, Dominance, and Democracy*)
 7. Gould, "Our Natural Place," *Hen's Teeth and Horses' Toes*, p. 241 (reading package)
 8. Steven Pinker, *The Blank Slate*, "Preface" and Chapter 7, reading package
 9. Prindle, *Stephen Jay Gould*, Chapter 4

[Readings four through nine address the topic of sociobiology].

10. Gould, *Wonderful Life*, pp. 23-52, 189-193, in reading package
 11. Simon Conway Morris, *Life's Solution*, xi-xvi, 283-310, in reading package
 12. Prindle, *Stephen Jay Gould*, Chapter 3, pp. 103-109

[Readings ten through twelve address the topic of the progressivity of evolution].

<u>Session</u>	<u>Topic</u>
11	Darwinism in the twentieth century
12	Controversy: The pace of evolution
13	Pace, continued
14	Controversy: Sociobiology
15	Sociobiology, continued
16	Documentary: "The Fifth Ape"
17	Controversy: Is evolution progressive?
18	Progressive? continued
19	Test Review
20	SECOND TEST/SECOND ESSAY DUE

III. Darwinism versus creationism in a modern context

- Reading: 1. Michael Behe, "Molecular Machines: Experimental Support for the Design Inference," in reading package
2. Phillip Johnson, *Darwin On Trial*, Chapters 1 thru 4, 9 thru 12
3. William Dembski, "Intelligent Design as a Theory of Information," in reading package
4. Jerry Coyne, *Why Evolution is True*, Chapters 1, 2, 3 (pp. 81-85 only), 4, and 8
5. Prindle, *Stephen Jay Gould*, Chapter Six, pp. 184-195 only

<u>Session</u>	<u>Topic</u>
21	The modern American politics of evolution
22	Movie: "Inherit the Wind" (1960)
23	"Inherit the Wind" continued
24	Modern politics, continued
25	Documentary: "Unlocking the Mystery of Life"
26	Darwinism and creationism
27	Darwinism and creationism, continued
28	Documentary: "God Strikes Back"
29	Testing Darwinism and Intelligent Design
30	Test Review
31	FINAL EXAM/THIRD ESSAY DUE