

The *Origin of Species* and The Politics of Evolution Spring, 2011

Gov. 335m, unique #38879
CTI 370, unique #34205
Meeting times: TuTh, 11 to 12:15
Meeting room: Mezes 1.306

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Teaching Assistants

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Purpose of the Course

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.

Assigned Reading

- 1) Charles Darwin, *The Origin of Species by Means of Natural Selection*, first edition, (Barnes and Noble Classics, 2004) [first published 1859]
- 2) Jerry Coyne, *Why Evolution is True* (Viking, 2009)
- 3) Phillip Johnson, *Darwin on Trial*, second edition, (InterVarsity Press, 1993)
- 4) David Prindle, *Stephen Jay Gould and the Politics of Evolution* (Prometheus Books, 2009)
- 5) A package of readings, available at the House of Tutors, at the corner of 24th and Pearl Streets west of campus.

Class Meeting Schedule

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

- Reading: 1. Excerpts from Chapter 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>Date</u>	<u>Topic</u>
January 18	Introduction and class survey
20	continued
25	Darwin's historical context
27	Movie: "Creation" (2009)
February 1	"Creation: continued
3	Structure of the theory
8	Documentary: "Life, Darwin, and Everything"
10	Reception of the <i>Origin</i> during the nineteenth century
15	Test Review
17	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. Gould, "Our Natural Place," *Hen's Teeth and Horses' Toes*, p. 241 (reading package)
 7. Steven Pinker, *The Blank Slate*, "Preface" and Chapter 7, reading package
 8. Prindle, *Stephen Jay Gould*, Chapter 4
[Readings four through eight address the topic of sociobiology].
 9. Gould, *Wonderful Life*, pp. 23-52, 189-193, in reading package
 10. Simon Conway Morris, *Life's Solution*, xi-xvi, 283-310, in reading package
 11. Prindle, *Stephen Jay Gould*, Chapter 3, pp. 103-109

[Readings nine through eleven address the topic of the progressivity of evolution].

February	22	Darwinism in the twentieth century
	24	Controversy: The pace of evolution
March	1	Pace, continued
	3	Controversy: Sociobiology
	8	Sociobiology, continued
March	10	Documentary: "The Fifth Ape"
	15 and 17	SPRING BREAK; NO CLASS
	22	Controversy: Is evolution progressive?
	24	Progressive? continued
	29	Test Review
	31	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

April	5	Darwinism and creationism
	7	Darwinism and creationism, continued
	12	Documentary: "Unlocking the Mystery of Life"
	14	Guest lecture: Jay Wilbur
	19	Guest lecture: Robert Koons
	21	Documentary: "God Strikes Back"
	26	Testing Darwinism and Intelligent Design
	28	Testing, continued
May	3	Repeat of class survey
	5	Test Review
	12 (Thursday)	FINAL EXAM/THIRD ESSAY DUE

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 AA@ 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 AB,@ 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 Thursday, February 17, Thursday, March 31, and the day of the final exam, Thursday, May 12th by 2 p. m.

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 on the same day.

ESSAYS

Essays are due at the beginning of class the same day as the tests: February 17, March 31, and the day of the final exam, May 12th, 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. No legal-size paper. Normal margins. Each must have a cover page giving your name, the class catalogue number (34205) the semester, and the paper topic in brief.

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.

Since by this time in the course my own prejudices should be obvious, I want to repeat here my caution that you will not be rewarded for agreeing with me, nor punished for disagreeing. I am interested in the quality of your arguments, not in your conclusions.

TESTS

There are three tests in this class, February 17, March 31, and the day of the final exam, May 12th. 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 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. I may also add a concept or two from the guest lectures—If I do, I will give you plenty of notice. 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; 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: 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*; sFlt1

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
- C. Any disabled student may request appropriate academic accommodations from the office of Services for Students with Disabilities, 471-6259.
<http://www.utexas.edu/diversity/ddce/ssd/>
- D. Religious Holidays: By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence. Because I do not take roll, you do not need to “notify” me if you are simply going to miss an ordinary class session, for religious reasons, because you are ill, or for any other reason. (You should, of course, get the lecture material from a friend or from some other source, but you do not have to tell me of your absence in advance). You only need to let me and the TA know of your absence if it will interfere with your taking of a test or completing some other assignment.
- E. Dishonesty: I hope it goes without saying that cheating will be dealt with in a merciless manner. But because the University requires me to say it anyway, let me direct you to the UT Honor Code (or statement of ethics) and an explanation or example of what constitutes plagiarism (Link to University Honor Code: <http://registrar.utexas.edu/catalogs/gi09-10/ch01/index.html>)