

K20.1156
THE DARWINIAN REVOLUTION

Charles Darwin's theory of evolution by natural selection may be the single most influential scientific theory ever proposed. It would be safe to say that the world we inhabit has not been the same place since 1859, when Darwin, nudged on by Alfred Russel Wallace's co-discovery of the idea of natural selection, first published *On the Origin of Species*. Since that time the Darwinian theory has inspired considerable self-reflection, opened up whole new fields of inquiry, and provoked controversy after controversy. This course examines the origin, nature, and consequences of Darwin's evolution theory, with an emphasis on the interrelationships among the social, cultural, and intellectual dimensions of the scientific enterprise. We will discuss such matters as the relationship of Darwin's theory to social, political, and moral discourse in Victorian Britain; the belated full acceptance of the theory by the scientific community; religious opposition to the theory, as well as various attempts at reconciliation (including that by Pope John Paul II in the 1990s); applications, and misapplications, of the theory, such as Social Darwinism, eugenics, and sociobiology; the influence of Darwinian thought on politics, literature, and the arts; and various philosophical issues raised by the theory, such as biological determinism and free will. Interest in Wallace is undergoing a revival at present, but it is Darwin's name that remains tied to the theory, and we will explore some of the reasons for that. A background in the sciences is not assumed for this course, but you are expected to make an effort to understand the nature of the Darwin-Wallace theory and the scientific basis of some of the controversies surrounding its applications.

Objectives: From my perspective, this course has three major goals. If all goes as planned and hoped, at the end of the semester (1) you should have become familiar enough with the main features of the Darwinian Revolution to fully understand its significance, including understanding what Darwin actually said and how various people have interpreted and misinterpreted what he said, (2) you should be able to sort through and analyze for yourself many of the current applications of Darwinian theory and controversies involving the theory, whether in newspaper or magazine articles, television programs, legislative debates and court cases, or whatever, and (3) you should have developed an understanding of the Darwinian Revolution that is meaningful for you personally.

Course requirements. You will be expected to attend all classes, participate in class discussions, and write four essays of varying length (3-7 pages). There may be occasional ungraded assignments as well. For most classes two students will be assigned to comment on the readings and help initiate the discussion. Each student will likely have that responsibility for two classes during the semester. The first two essays will be due before the spring break and focus on Darwin, and Wallace. The third and fourth essays--due in early April and just after classes end, respectively--will deal with more recent topics and controversial themes. The due dates (subject to change) are listed on the schedule.

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Texts (The following are available at the NYU Bookstore and on reserve in the Bobst Library):

Michael Ruse, *The Evolution-Creation Struggle*

Philip Appleman (ed.), *Darwin: Texts, Commentaries* (Norton Critical Edition)

Kurt Vonnegut, *Galápagos*

Charles Darwin, *Origin of Species* (Penguin--this edition only)

Charles Darwin, *Voyage of the Beagle* (Penguin--this edition only)

Alfred Russel Wallace, *The Alfred Russel Wallace Reader*

Matt Ridley, *The Origins of Virtue*

Sean Carroll, *The Making of the Fittest*

A small collection of photocopied readings (coursepack)

A Note on the Reading: This may seem at first like a lot of reading, but we won't be reading every word of every book. Vonnegut's *Galápagos*, which we will be looking at early, will help set the stage. It offers a unique perspective on human evolution. The Ruse book will provide a kind of continuity throughout the semester. There is certainly more to the Darwinian revolution than the evolution-creation struggle, but Ruse uses this theme both to provide a historical overview and to raise some very significant questions regarding the social and cultural implications of Darwinian theory. The Appleman anthology's main strength is the variety of materials and viewpoints that it presents. Unfortunately, it is heavily abridged, so it can't take the place of original texts, but it will serve to fill in the spaces in Ruse's broad outline. The readings in the coursepack cover a few additional themes. Most paperback versions of Darwin's *Origin of Species* are based on the sixth edition--greatly revised, expanded, and more confusing. The Penguin edition that I've ordered for this course is based on the first (1859) edition. The only other cheap paperbacks based on the first edition that I am aware of are published by Dover Books and Barnes and Noble. Use only the first edition for this course. The Penguin edition of the *Voyage of the Beagle* is also based on Darwin's first edition and conveys his reflections before he fully developed his evolution theory. Again, use this edition only. The *Alfred Russel Wallace Reader* is a new collection of Wallace's writings. It complements Darwin's *Voyage* nicely, since Darwin traveled the world as a privileged English gentleman while Wallace traveled as a self-employed collector barely making ends meet. Matt Ridley's *Origins of Virtue* is an introduction to sociobiology, or evolutionary psychology as it is now called, that attempts to account for just about everything human in terms of natural selection. Sean Carroll's *Making of the Fittest* provides a glimpse of our present understanding of evolutionary theory from the viewpoint of contemporary DNA evidence. At the end of the book Carroll offers insights into environmental problems from the perspective of evolution theory.

Ground rules. *Attendance and etiquette:* I take attendance. Your commitment to take this course entails a commitment to attend every class and to be on time. If you aren't in class, I will assume it is due to illness or an emergency. Please respect your classmates. Late arrivals always disrupt the atmosphere of a classroom, as do cellular phones, pagers, etc. Turn them off *before* coming to class. The success of this course depends on the quality of the discussions, which, in turn, depends on each student keeping up with the reading and on everyone working to maintain an atmosphere conducive to discussion. So feel free to state your opinions, but respect your classmates' rights to do the same. *Documentation and plagiarism:* I will assume that all written work is your own and that you understand the basic rules for acknowledging outside sources. If you aren't sure, check with me or consult one of the many guides for writing college papers. Any clear instance of plagiarism will result in automatic failure of this course and possible further disciplinary action.

SCHEDULE OF TOPIC AND READINGS

We will try to keep to this schedule if at all possible, but anticipate a few changes over the course of the semester. You should be prepared to discuss the reading that is listed under a given date on that date. Assume that all readings listed are required unless otherwise indicated. It is not possible to discuss each reading selection in detail, so handouts from week to week will indicate which readings to emphasize for discussion. *Readings preceded by an asterisk are in the coursepack.

I. Setting the stage

- W JAN 23 Introductions; Darwinism today
(Begin reading Ruse, *The Evolution-Creation Struggle*)
- M JAN 28 Discovering extinction & deep time
*Cuvier, “Living and Fossil Elephants” and “The Megatherium from South America”
Ruse, Prologue, & chaps. 1 & 2
(Begin reading Vonnegut, *Galápagos*)
- W JAN 30 Gould’s three riddles
“Darwin’s Revolution in Thought” (VIDEOTAPE)
Appleman, pp. 41-44 (excerpt from Paley, *Natural Theology*)
(Continue reading Vonnegut)
- M FEB 4 Humankind a million years from now?
Vonnegut, entire
- W FEB 6 Evolution before Darwin
Ruse, chap. 3
Optional: Appleman, pp. 44-49 (Lamarck, *Zoological Philosophy*)

II. Darwin, Wallace, and the birth of natural selection theory

- M FEB 11 Darwin comes of age: the Beagle voyage
Darwin, *Voyage of the Beagle*, chaps. 1, 2, & 5 (and look over the chronology, pp. ix-xi); optional: Introduction & Appendix One
- W FEB 13 The voyage continues: a river excursion, Tierra del Fuego, and Galapagos
Darwin, *Voyage*, chaps. 10, 11, & 14; also pp. 372-77
Optional: chaps. 9 & 23, or whatever looks interesting
FIRST ESSAY DUE
- M FEB 18 President’s Day (no class)
Read Ruse, chap. 4, sometime over the next two weeks
- W FEB 20 Fellow traveler: introducing Alfred Russel Wallace
Wallace, *The Alfred Russel Wallace Reader*, Introduction & chap. 2

- M FEB 25 Wallace in the Amazon and Malay Archipelago
Wallace, chaps. 3
- W FEB 27 Malthus, Wallace, Darwin
Appleman, pp. 39-40 (Malthus, *Essay on the Principle of Population*)
Wallace, pp. 142-51
Darwin, *Origin of Species*, pp. 65-69 (Darwin's intro.) and chaps. 1 & 2
- M MAR 3 The argument stated
Darwin, *Origin*, chaps. 3 & 4
- W MAR 5 Difficulties, yes, but "There is grandeur in this view of life..."
Darwin, *Origin*, chaps. 6 & 14 (and any *one* of chaps. 7-13)
SECOND ESSAY DUE BY FRIDAY MARCH 7
- III. Reactions, applications, implications
- M MAR 10 Darwin takes the plunge: human evolution
Appleman, pp. 194-222 (from Darwin's *Descent of Man*)
- W MAR 12 Darwin and Wallace on women, savages, and sexual selection
Appleman, pp. 230-254 (from Darwin's *Descent of Man*)
Wallace, pp. 160-63
Appleman, p. 426 (Elizabeth Cady Stanton excerpt); & pp. 434-444 (Evelleen Richards, "Darwin and the Descent of Woman")
- MAR 17-21 Spring Recess
Recommended: For a contemporary view of evolutionary biology begin reading Carroll, *The Making of the Fittest*--a few chapters are assigned below, but just choose any chapter that looks interesting; you can read them out of order
- M MAR 24 Immediate responses/ "Social Darwinism"
Ruse, chaps. 5 & 6
Appleman, pp. 271-76 (Fleeming Jenkin review); pp. 389-95 (Hofstadter)
*Spencer, "The Development Hypothesis" & "Poor Laws"
- W MAR 26 Christianity and evolution
Ruse, chaps. 7 & 8
Miscellaneous reviews on the Complete Works of Charles Darwin Web site (TBA)
- M MAR 31 The Scopes Trial revisited
*Hunter, *A Civic Biology*, excerpts
*Larson, "Enforcing the Law"
Appleman, pp. 542-49 (Scopes Trial transcript)
Inherit the Wind (film clips)

W APR 2 Genetics, eugenics, and the evolutionary synthesis
 Ruse, chaps. 9
 The Eugenics Archive (online source, TBA)
 Optional: Appleman, pp. 319-327 (Bowler)
 THIRD ESSAY DUE, FRIDAY APRIL 4

IV. Contemporary issues

M APR 7 Human origins
 Ruse, chap. 10
 Carroll, *Making of the Fittest*, chap. 7
 Optional: Appleman, pp. 326-342 (selections on human genealogy)

W APR 9 Altruism: a problem for Darwinism?
 Ridley, *Origins of Virtue*, Prologue and chaps. 1 & 2
 Appleman, pp. 398-403

M APR 14 Prisoner's dilemma: the origins of cooperation?
 Ridley, chaps. 3 & 4

W APR 16 Morality explained?
 Ridley, chaps. 7 & 10
 Appleman, pp. 409-419 (Wilson on sociobiology & Gould's response)

M APR 21 Progress and evolutionary ethics?
 Ruse, chap. 11
 Appleman, pp. 501-511 (Huxley, Huxley, Wilson & Ruse)

W APR 23 Evolution and the pope
 *Pope John Paul II, Gould, Ruse, Dawkins
 Appleman, pp. 572-574 (Matsumura, "What Do Christians *Really* Believe...?")

M APR 28 Resisting the scientific origin story I: from the Scopes Trial to creation science
 Carroll, chap. 9
 Ruse, chap. 12
 Appleman, pp. 555-564; (optional: Appleman, pp. 534-541)

W APR 30 Resisting the scientific origin story II: new wrinkles & nonwestern responses
 Appleman, pp. 592-604; 551-555
 The Human Genome Diversity Project (reading TBA)

M MAY 5 Parting thoughts
 Ridley, chap. 13, "Trust"
 Ruse, "Conclusion"
 Carroll, chap. 10, "The Palm Trees of Wyoming"

F MAY 9 FOURTH ESSAY DUE (no exceptions!)