



Darwin and Science in America

HIS 190

Instructor: Daniel Rinn

Fall 2017

MWF 9–9:50am

Classroom: LeChase 121

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Course Description

This course explores the development and reception of Darwin's theory of evolution from the publication of *On the Origin of Species* (1859) to present debates about scientific determinism. We will cover familiar topics such as social Darwinism and creationism, but the course focuses on developments in the history of science and philosophy. Darwin posed hard questions for many Americans. If chance variation determined the survival value of an organism, what did this say about human consciousness and free will? Could humans determine their own fate, or was it predetermined by the laws of science? Does evolutionary theory necessarily entail a reductive understanding of consciousness, suggesting the complexities of mind, human behavior, and cultural values are explainable in terms of brain chemistry and neurological processes?

Required Texts

There are no required texts to purchase for this class. All readings will be posted as PDF files on Blackboard or provided as an email attachment.

Grading

Grades for this course will be determined using the University of Rochester's grading scale:

93-100 = A	73-76 = C
90-92 = A-	70-72 = C-
87-89 = B+	67-69 = D+
83-86 = B	63-66 = D
80-82 = B-	60-62 = D-
77-79 = C+	0-59 = F

Attendance and Participation (20%): Students are expected to attend every class session. Due to the relatively small size of this class, it is essential that every student comes to class prepared to participate and discuss course content. Failure to attend class sessions will result in a reduction of your overall grade for the course. Because this class is a mixture of lecture, discussion, and in-class exercises, students must come ready to participate. Please come prepared to discuss assigned readings and share your insights, questions, and thoughts about them. Keep in mind that on certain days students may be asked to bring discussion questions to class.

Short Paper (20%): A three-page response to an essay prompt provided by the instructor. We will workshop a rough draft of this paper in class on Monday, October 2nd. Final draft due on October 11th. You will receive 5% extra credit if you visit a writing consultant at the Writing, Speaking, and Argument Program.

Critical Inquiry (45%): The above components of the course lay the foundation for your own inquiry into American ideas about science and the meaning of evolution. Although some form of written report will accompany this project, you are invited to choose from a number of modes to communicate your findings. Please talk with me about the details. A few options are included below:

Short Essays: 2 total

- these should take up themes addressed in the course assignments.
- due November and December throughout the semester.
- 5-6 pages

OR

Cumulative Paper

- this paper addresses course content in its entirety
- due Saturday, December 17th
- 12 pages

OR

Research Paper

- independent research on a topic related to the course
- Week two: topic selection and approval by instructor
- Week twelve: outline due
- Final paper due December 17th
- 10 pages

OR

An assignment of your own devising

- discuss this option with the instructor during the first week of class
- examples: a short film, musical composition, visual art, or a podcast!
- this option will require a formal proposal and short writing component: a report, abstract, or artist's statement for example.

Critical Inquiry Presentation (15%): Student presentations will take place on December 11th and 13th.

Classroom Procedures

This course is a seminar. Seminars operate best in a critical yet respectful environment. Differing opinions in classroom discussions are encouraged. If you happen to disagree with someone else's argument or opinion, please do so in a respectful and courteous manner. Persistent rude or insensitive comments will result in a deduction from your final grade for the course. Harassment of any kind will not be tolerated and will be reported to university officials for review and potential disciplinary action.

Academic Honesty

As members of an academic community, students and faculty assume certain responsibilities, one of which is to engage in honest communication. Academic dishonesty is a serious violation of the trust upon which an academic community depends. A common form of academic dishonesty is plagiarism. The representation of another person's work as one's own, or the attempt "to blur the line between one's own ideas or words and those borrowed from another source." More specifically, the use of an idea, phrase, or other materials from a written or spoken source without acknowledgment in a work for which the student claims authorship. Examples include: the misrepresentation of sources used in a work for which the student claims authorship; the improper use of course materials in a work for which the student claims authorship; the use of papers purchased online and turned in as one's own work; submission of written work such as laboratory reports, computer programs, or papers, which have been copied from the work of other students, with or without their knowledge and consent. A student can avoid the risk of plagiarism in written work or oral presentations by clearly indicating, either in footnotes or in the paper or presentation itself, the source of any idea or wording that he or she did not produce. Sources must be given regardless of whether the idea, phrase or other material is quoted directly, paraphrased or summarized in the student-writer's own words.

In cases where plagiarism is evident, the University of Rochester's policy governing academic dishonesty will be followed. The penalty for a first event of plagiarism in a first year writing course is a "0" for the assignment. This pertains to rough drafts as well as final drafts and informal writing assignments. As required by the University of Rochester's academic honesty policy, all instances of plagiarism will be reported to the College Board of Academic Honesty for further review.

For the complete University of Rochester academic honesty policy, see <http://www.rochester.edu/college/honesty/index>.

Academic Assistance

Please know that this classroom respects and welcomes students of all backgrounds and abilities. I invite you to talk with me about any concerns or situations that may affect your ability to complete your assignments successfully. If you have any issues throughout the semester I strongly encourage you to contact the Center for Excellence in Teaching and Learning (CETL). CETL supports undergraduate students at the University of Rochester with services that promote academic success, including course-specific collaborative study groups, study skills counseling, a study skills course, and disability support.

Schedule:

Part One: The Task of the Intellectual Historian

Week One

- Wednesday August 30th: Introduction
 - Course expectations and grading
 - Teaching philosophy and the history of ideas
 - Resources

- Friday September 1st: Our Investigation
- Exploring course themes: Evolution, Science, and the Mind
 - Assignment: "The Idea of Evolution: Its Scope and Implications" from Peter Bowler's *Evolution: The History of an Idea* (1984)

Part Two: (Long) Before Darwin

Week Two

- Monday September 4: NO CLASS Labor Day

- Wednesday September 6th: Science and the Great Chain of Being: Carl Linnaeus and Charles Lyell

- Assignments: selections from Ch. Two, "The Empire of Reason," from *The Economy of Nature* by Donald Worster (1977)
- selections from *Principles of Geology* (c. 1830)
- Friday September 8th: John Baptiste Lamarck
 - Assignments: "Lamarck's Theory of Evolution" in Richard Burkhardt's *The Spirit of System* (1995)
 - In class: In Our Time Podcast on Lamarck

Part Three: Darwin's Challenge and the American Response

Week Three

- Monday September 11th: The Naturalized World
 - Assignment: excerpts from Darwin's *On the Origin of Species* (1859): selections from chapters III & IV. 131-158.
- Wednesday September 13th: The Naturalized Mind
 - Assignment: excerpts from chapter XIII of Charles Darwin's *Expressions of the Emotions* (1872). 369-390.
- Friday September 15th: Chance, Probability, and Uncertainty
 - Assignment: Chapter Two, "Darwin's Dangerous Idea," from David Hoeveller's *The Evolutionists* (2007). 25-48
 - In-class: Podcast on Charles Darwin's life.

Week Four

- Monday September 18th: Louis Agassiz
 - Assignment: "Triple Coincidence in the Succession, Gradation, and Growth of Animals" (1862)
- Wednesday 20th: Asa Gray
 - Assignment: selections from "Natural Selection and Natural Theology" (1860)
- Friday September 22nd: Chauncey Wright and Liberty Hyde Bailey
 - Assignments:
 - selections from Chauncey Wright's "Evolution of Self-Consciousness (1873)
 - selections from Liberty Hyde Bailey, "Evolution: The Search for Truth" taken from *Outlook Toward Nature* (1905)

Part Four: Culture and the Evolving Gene: Understanding the Individual and Society

Week Five

- Monday September 25th:

- Assignments:
 - selections from John Fiske's *Darwinism and Other Essays* (1879)
 - Andrew Carnegie's "The Gospel of Wealth" (1889)
- Wednesday September 27th: Theism
- Assignments:
 - Transcripts from the Scopes Trial (1925)
 - William Jennings Bryan, "The Menace of Darwinism" (1921)
- Friday September 29th: Nontheism and Science
- Assignments:
 - William James on 'Habit' from *The Principles of Psychology* (1890)
 - selections from John Dewey's *The Influence of Darwin on Philosophy* (1910) and *How We Think* (1910)

Week Six

- Monday October 2: Short paper workshop. Bring a draft of your essay to class.
- Wednesday October 4th: Cooperation?
 - Assignments:
 - selections from Alfred Emerson, "The Biological Basis of Social Cooperation," (1946)
 - selections from Warder Clyde Allee, "Co-operation Among Animals," (1928)
- Friday October 6th: George Gaylord Simpson
- Selections from *The Meaning of Evolution: A Study of the History of Life and of Its Significance for Man* (New Haven: Yale University Press, 1949)

Week Seven

- Monday October 9th: FALL BREAK NO CLASS
- Wednesday October 11th: The Modern Synthesis
 - Assignment: Peter Bowler "The Evolutionary Synthesis" from *Evolution: The History of an Idea* (1984)
- Friday October 13th: Evolutionary Psychology
 - Assignment: E.O. Wilson, *Sociobiology: The New Synthesis* (1975), Chapter 1: "The Morality of the Gene" and Chapter 2 "Elementary Concepts of Sociobiology," pp. 3-31.
 - In class film: *Nice Guys Finish First* (1986)

Week Eight

- Monday October 16th: Pushing Back

- Assignment: selections from Marshall Sahlins's *The Use and Abuse of Biology: An Anthropological Critique of Sociobiology* (1976)
- Wednesday October 18th: Race Part One
 - Assignment: selections from TC Schelling "Models of Segregations" (1969) *American Economist*
- Friday October 20th: Race Part Two
 - Assignment: selections from Stephen Jay Gould, *Ever Since Darwin: Reflections in Natural History* (1977)

Part Five: What is it like to be human?

Week Nine

- Monday October 23rd: Computation
 - Assignments:
 - selections from John Von Neumann, *The Computer and the Brain* (1958)
 - selections from Alan Turing, "Computing Machinery and Intelligence" (1950)
- Wednesday October 25th: Conway's Game of Life
 - Assignment: Martin Gardner "Mathematical Games," columns published in *Scientific American* 1970 and 1971.
- Friday October 27th: Bringing computers to life.
 - Assignments:
 - Selections from *Do Androids Dream of Electric Sheep?* (1968) by Philip K. Dick;
 - Selections from *Intelligent Machines* (1990) by Ray Kurzweil
 - FILM: *Ex Machina*

Week Ten

- Monday October 30th: A post-human moment before Halloween. Costume idea: A cyborg.
 - Assignment: "A Cyborg Manifesto" (1984) by Donna Haraway
- Wednesday November 1st: Being human.
 - Assignment: Thomas Nagel's "What is it like to be a bat?" (1974)
- Friday November 3rd: Being human part two.
 - Assignment: selections from John Searle's *Minds, Brains and Science: The 1984 Reith Lectures*

Week Eleven

- Monday November 6th: Explaining away consciousness?
 - Assignment: selections from *Consciousness Explained* (1991) by Daniel Dennett

- For those choosing the two paper option: First short essay due
- Wednesday November 8th: Explaining away empathy?
 - Assignment: selections from Richard Dawkins *The Selfish Gene* (1976)
- Friday November 10th: Explaining away the world?
 - Assignments:
 - Edward Fredkin, Digital Philosophy and Transcomputationalism
 - Assignment: TBA <http://www.digitalphilosophy.org>
 - FILM: *The Thirteenth Floor*

Part Six: (Neo)Darwinian Naturalism and the Implications of Scientific Method

Week Twelve

- Monday November 13th: Edward Lorenz and Chaos
 - Assignments:
 - selections from James Gleick's *Chaos* (1987)
- In class: In Our Time episode on Chaos
- Wednesday November 15th: Models of Determinism
 - Assignments:
 - selections from Stephen Hawking's *Grand Design* (2012)
 - selections from Sean Carroll's *The Big Picture* (2016)
- Friday November 17th: Ultra-Darwinism
 - Assignments:
 - selections from *Darwin's Dangerous Idea* (1995) by Daniel Dennett
 - selections from Steven Pinker's *The Stuff of Thought* (2007)

Week Thirteen

- Monday November 20th: Critical Inquiry progress report and individual meetings.
- Wednesday November 22nd: NO CLASS Thanksgiving recess
- Friday November 24th: NO CLASS Thanksgiving recess

Final Part: Celebrating mystery in the universe.

Week Fourteen

- Monday November 27th: Spandrels
 - Assignments:
 - selections from Richard Lewontin's *The Triple Helix* (2002)
 - selections from *The 5th Miracle* (2000) by Paul Davies

- Wednesday November 29th: The Limits of Reductionism
 - Assignment: selections from William C. Wimsatt's *Re-Engineering Philosophy for Limited Beings* (2007)
- Friday December 1st: Contesting Darwinian Naturalism
 - Assignment: selections from Thomas Nagel's *Mind and Cosmos* (2012)

Week Fifteen

- Monday December 4th:
 - Assignment: Michael Behe, "Irreducible complexity: Obstacle to Darwinian Evolution," in *Debating Design* (2004)
- Wednesday December 6th:
 - Assignment: selections from Mark Laland's *Darwin's Unfinished Symphony* (2017)
- Friday December 8th: Creating the Universe
 - Assignment: selections from Robert Lanza's *Beyond Biocentrism* (2016)

Week Sixteen

- Monday December 11th
 - Project Presentations
- Wednesday December 13th:
 - Project Presentations
 - For those choosing the two paper option: Second short essay due

Exam Week: December 17th—22nd