

History 311-01. Darwin and the Theory of Evolution (CRN: 80159)

(Tuesday & Thursday 3:30-4:45, MHRA 1210)

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Office hours: Tu & Th 11:00-11:45, 2:45-3:30, or by appointment. I'm available many other times, and I encourage you to come see me if you're having trouble, want to clarify things, or just want to talk.

The centerpiece of this course is Charles Darwin's epoch-making book, *On the Origin of Species* (1859), which succeeded in making the idea of organic evolution generally acceptable first to the scientific community and then, gradually, to a wider public. The first questions to be addressed will be, What is Darwin's theory? What does it try to explain? What is his evidence? With Darwin's theory as our benchmark, we will then drop back historically to pick up the various strains of thought and evidence that led people to ask questions about the origin and variability of species and to propose the explanations they did.

Aside from conveying a certain amount of information about one of the most important developments in the history of Western science, the purpose of this course is to give the student a sense of the historical character of the growth of scientific ideas, to appreciate how certain questions arise and why certain answers are proposed and found acceptable (or not) by the community of scientists. Most of the readings will be from primary sources--that is, the original works of the scientists themselves. Much of the work in the course will consist of a close reading of these texts in an attempt to figure out what they were saying, what their central problems were, and what kind of evidence they had. Secondary-source readings will provide historical context and will be used to illustrate the character of historiographical interpretations.

The required books for the course are Charles Darwin, *On the Origin of Species*. A Facsimile of the First Edition (Cambridge & London: Harvard University Press, 1964); John C. Greene, *The Death of Adam: Evolution and Its Impact on Western Thought* (Ames, Iowa: Iowa State University Press, 1959); and Michael Ruse, *The Darwinian Revolution: Science Red in Tooth and Claw*, 2nd ed. (Chicago & London: University of Chicago Press, 1999). Additional required and recommended readings (designated "eR" in the syllabus) are accessible on-line as "e-Reserves" via Blackboard, as described below. *You should do the assigned readings before the corresponding class, and bring the readings with you to class.*

An italicized "*handout*" after an assignment indicates the existence of a supplementary document for that topic in the "Handouts" section of Blackboard. You should print them out ahead of time and bring them to class, as appropriate. An unitalicized "handout" indicates that I'll be distributing one in class.

A few words about Blackboard, UNCG's online course management system. You can access it from the UNCG homepage by clicking "Current Students" on the horizontal yellow bar, then "Blackboard" on the horizontal grey line just below it. Most of you will already have been exposed to Blackboard at one or another orientation session for incoming students. If not, you can familiarize yourself with it via the Blackboard Online Student Orientation at

<http://www.uncg.edu/aas/itc/bborient/>. If you have specific problems—say with logging in or printing—you should call the Help Desk at 6-TECH (*i.e.*, 68324) on a University phone. *In order to gain access to Blackboard you will first need to have activated your student account.* If you haven't, go to <http://blackboard.uncg.edu/webapps/login>. Click on the yellow “Support” tab at top, then “Activate your accounts” under the Links at upper left, and follow the directions. What you need to know for this course is relatively simple. “Course Documents” contains the syllabus, a list of e-Reserves readings (with full bibliographic information), and a set of study questions to guide you in understanding the readings. “e-Reserves” is a list of all the readings, arranged alphabetically by title. “Announcements” will alert you to things like changes in the syllabus or cancellation of a class—unlikely, but you should check it regularly just in case.

Written work for the course consists of three “formal” writing exercises of about two pages each (each 12% of your raw final grade), a *revised* research paper of eight-to-ten pages (40%), five shorter exercises preliminary to the paper (each 5%), and a dozen or so short “informal” in-class or at-home writing exercises based on the readings. I will look at and (usually) comment on the informal exercises, marking them in a check-plus, check, check-minus fashion. *All written assignments prepared out of class must be typed.* Adjustment will be made to the final grade on the basis of class participation (including the in-class and at-home writing exercises) and attendance, up to a maximum of a full letter grade. *More than three absences are considered excessive, and may lead to your being dropped from the roll. Students who miss the first two class periods will be dropped from the roll. If you fail to submit any of the above-mentioned five shorter exercises preliminary to the research paper (due September 15, October 6, 22, and 29, and November 17) I will not accept your research paper!*

The informal in-class and at-home writing exercises will typically ask you to respond to the pertinent readings or issues. In reading *primary sources*, you should regularly ask the following questions: (1) What particular problem is the author addressing? (2) What are the author's (usually tacit) assumptions? (3) How good is the evidence adduced? A good way of generating insights is to ask what I informally call the “zen question”: Are you surprised by *not* finding something you expected? In reading *secondary sources*, ask yourself what the author's intentions and possible biases are. How well does the evidence support the author's points? *Late submissions of at-home exercises will be read and returned but no mark will be recorded.*

The formal writing exercises consist of preassigned questions to which you will submit double-spaced *typed* answers of about two pages in length. On the day you submit them we will discuss the content of the questions in class. *Late submissions will not be accepted.* I will read them over and return them with comments on content and style. *These questions should not be used as paper topics.*

Research papers should be eight-to-ten double-spaced *typed* pages. They will be marked for content and style and returned to you for revision. The final grade on the paper will be that of the revised version. The syllabus gives the dates for submission. *Unexcused late submissions of any assignment are subject to a penalty of up to a full letter grade for that assignment. It is essential that you hand in the first version of your research paper with your revision in order to receive a grade!* Further details will be gone over in class. I will hand out a set of essay “Guidelines” that I expect you to read and follow. Note that I have handed out a separate list of study questions to guide your reading and thinking; these questions can also provide suggestions for possible paper topics. I encourage you to read around in the unassigned pages of Ruse's *Darwinian Revolution* not only for general enlightenment but also for ideas on possible paper topics. (The “Afterword” is especially good in this regard.) Ruse's account is good history told with philosophical sophistication. A comparison of Greene's and Ruse's treatment of the same material might be a valuable exercise. The

“Guide to the Literature on Darwin and Evolution” (**eR**) provides topical and bibliographical suggestions. An especially useful source of research ideas is David Kohn, ed., *The Darwinian Heritage* (Princeton: Princeton University Press, 1985), on reserve in Jackson Library. Note also “The Complete Works of Charles Darwin Online” (<http://darwin-online.org.uk/>); this site contains *much* additional material. The “Google Advanced Book Search” ([http://books.google.com/advanced\\_book\\_search](http://books.google.com/advanced_book_search)) can be used to locate (and print out) an amazing range of sources; choose “Full view only” to limit hits to usable sources. The Darwin Correspondence Project ([www.darwinproject.ac.uk](http://www.darwinproject.ac.uk)) lets you “read and search the full texts of more than 5000 of Darwin’s letters, and find information on 10,000 more.” Electronic Scholarly Publishing ([www.esp.org/books](http://www.esp.org/books)) may also be useful.

I expect students to have read and understood the section of the *Policies for Students* handbook (or the equivalent on-line version at <http://academicintegrity.uncg.edu/>) relating to the UNCG Academic Integrity Policy. Submission of written work implies your acceptance of its provisions. *I do not allow the use of laptops during class.*

### ***Student Learning Goals***

By the end of the semester, students will have a knowledge and understanding of

- Darwin's theory of evolution, including its scope and evidentiary base
- The historical sources of questions leading up to evolutionary answers, including the most prominent pre-Darwinian theories
- Theological issues relating to the understanding of the natural world
- Similarities and differences between Darwin's way of thinking and that of other relevant naturalists

### ***Research Goals***

By the end of the semester, students will be able to

- Distinguish primary from secondary sources
- Identify research problems
- Interpret primary sources
- Develop a logical and persuasive argument based on primary sources
- Communicate that argument in good English prose in a focused research paper
- Know how to use a generally recognized system of citations and bibliographic entries

### ***Schedule of Topics and Readings***

Introduction and Discussion (Aug. 25): *What do you know or believe about the theory of evolution?*

Darwin's Theory of Evolution I (Aug. 27): Darwin, *On the Origin of Species*, 1-15, (skim 15-29), 29-36, (skim 36-43), 44-52, 60-73, 80-116, 126-130; *handouts*.

Darwin's Theory of Evolution II (Sept. 1): *Origin*, 171-206; *handout*.

Darwin's Theory of Evolution III (Sept. 3): *Origin*, 341-354, 388-410, (skim 411-456), 456-458; *handout*.

Darwin's Theory of Evolution IV (Sept. 8): *Origin*, 459-490; Darwin and Wallace, "On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection" (**eR**), 46-53.

The *Origin* Recapitulated; Discussion (Sept. 10): Ruse, *Darwinian Revolution*, 188-201. Submit answer to first formal writing exercise: *Summarize Darwin's theory of evolution. What general classes of facts does it explain? What kind of evidence does he have?* Essay "Guidelines" and "Takehome Quiz" handed out; the latter is to be handed in at the start of the next class. (Late submissions of the takehome quiz will be gone over and returned but no grade will be recorded.)

Darwin Recapitulated; Discussion of papers and terms of historical research (Sept. 15): Ruse, 31-35, 160-173 (optional: 174-180); Greene, *Death of Adam*, 249-307. *Written assignment to be handed in: Identify four possible topics for a research paper relating to Charles Darwin. In a sentence or two for each, tell what's at issue or why it's interesting or significant.* (Note that there will be comparable assignments regarding future topics, so be thinking in these terms as you go.)

Natural Theology and Design; Cosmology and the Laws of Nature (Sept. 17): Greene, 1-42; Ruse, 63-74, 180-184; recommended: Gillispie, *Genesis and Geology* (**eR**), 3-20, 29-40; *handouts*.

Linnaeus (Sept. 22): Greene, 128-137; *handouts*.

Buffon I (Sept. 24): Greene, 54-59, 138-155, 156-157; Eiseley, *Darwin's Century* (**eR**), 39-45; recommended: Wilkie, "Buffon, Lamarck and Darwin" (**eR**), 262-287.

Buffon II (Sept. 29): Buffon, *Natural History, General and Particular*: "Of Animals Common to Both Continents" (**eR**), 132-139, 149-151; "Of the Degeneration of Animals" (**eR**, Pts. A & B), 392-452. [Note that the old-style "s," which looks at first glance like an "f," lacks the full "crossbar" of the latter.]

Discussion (Oct. 1): Submit answer to the second formal writing exercise: *To what extent was Buffon an "evolutionist"? What was--and is--Buffon's significance to the history of evolutionary thought?*

Discussion (Oct. 6): *Written assignment to be handed in: For each of the foregoing four topics on the syllabus (i.e., natural theology and design, cosmology and the laws of nature, Linnaeus, and Buffon), identify two possible topics for a research paper. In a sentence or two for each, tell what's at issue or why it's interesting or significant.*

Lamarck I (Oct. 8): Greene, 155-166; Ruse, 5-15; Lamarck, *Zoological Philosophy* (**eR**, Pt. A), 1-13, 56-59, 66-72, 82-83, 102-105; recommended: Wilkie, "Buffon, Lamarck, and Darwin" (**eR**), 288-302; *handout*.

Fall Break (Oct. 13)

Lamarck II (Oct. 15): Lamarck, *Zoological Philosophy* (**eR**, Pt. B), 106-133, 173-180, 236-240, 243-245.

[Friday, Oct. 16: last day to drop a class without academic penalty]

Buffer class (Oct. 20): Open discussion of papers or course subject matter, *but pay attention to the assignment due next time.* (Precepts for writing and living.)

Discussion (Oct. 22): *Written assignment to be handed in:* Having looked ahead to the materials on Lyell, Blyth, Chambers, and Wallace, identify one or two topics for a research paper for each. *In a sentence or two for each, tell what's at issue or why it's interesting or significant.*

Lyell, Uniformitarian Geology, and Lamarck (Oct. 27): Greene, 54-59, (skim 59-70), 70-85; Ruse, 36-56 (optional: 56-63); Lyell, *Principles of Geology* (**eR**, Pt. A), vol. 1, 75-77; vol. 2, 1-17; recommended: Eiseley, *Darwin's Century* (**eR**), 97-108; *handouts*.

Discussion (Oct. 29): *Written assignment to be handed in:* Submit a paragraph-long identification of the topic of your research paper. List, in proper bibliographical form, a few of the primary and secondary sources you've identified as relevant. (*Papers will be returned with comments next class. Some submissions will need to be revised in order to receive a grade.*)

Lyell and the Species Question I (Nov. 3): Greene, 249-256; Ruse, 75-93; Lyell, *Principles of Geology* (**eR**, Pt. B), vol. 2, 18-53, 62-65; recommended: Eiseley, *Darwin's Century* (**eR**), 108-115; *handout*.

Lyell and the Species Question II (Nov. 5): Lyell, *Principles of Geology* (**eR**, Pt. C), vol. 2, 66-67, 70-71, 123-126, 141-143, 154-161, 172-184; *handout*. Submit answer to third formal writing exercise: *What was Lyell's significance to the history of evolutionary thought (in general) and to Darwin (in particular)?* **N.B.: I expect to see evidence that you've read the primary sources!**

Edward Blyth (Nov.10): Blyth, "An Attempt to Classify the 'Varieties' of Animals" (**eR**), 40-53.

Eiseley on Blyth and Darwin (Nov. 12): Eiseley, "Charles Darwin, Edward Blyth, and the Theory of Natural Selection" (**eR**), 94-114; Eiseley, "Darwin, Coleridge, and the Theory of Unconscious Creation" (**eR**), 588-602.

Responses to Eiseley on Blyth and Darwin (Nov. 17): Schwartz, "Charles Darwin's Debt to Malthus and Edward Blyth" (**eR**), 301-318; Colp, "Loren Eiseley and 'The Case of Charles Darwin and the Mysterious Mr. X'" (**eR**), 85-88; Gruber, "The Origin of the Origin of Species" (**eR**), 2 pp. *Written assignment to be handed in:* Submit a reasonably detailed outline of your research paper with lists of the primary and secondary sources you've used. In a few sentences, state what your principal findings are.

Robert Chambers I (Nov. 19): Ruse, 98-106; Chambers, *Vestiges of the Natural History of Creation* (**eR**, Pts. A & B), 145-158, 164-169, 175-205, 218-227, 230-235, 387-390; Eiseley, *Darwin's Century* (**eR**), 132-140; *handout*.

Robert Chambers II (Nov. 24): Ruse, 106-116, 127-131; Chambers, *Explanations* (eR), 110-121, 142-143, 148-153, 158-171, 175-179; *handout*. **Research paper due.**

Thanksgiving (Nov. 26): no class

Alfred Russel Wallace (Dec 1): Ruse, 155-159; Wallace, “On the Law Which Has Regulated the Introduction of New Species” (eR), 184-196; Darwin and Wallace, “On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection” (eR), 53-62; *handout*.

Discussion (Dec.3): no new reading. **Research paper returned.**

Friday, Dec. 11: Revised papers due in my office or mailbox by noon. *You must resubmit your first submission in order to receive a grade in this course!*