

Syllabus
Honors 301T
Honors Seminar in Natural Science and Mathematics
History of Life
Fall, 2007 Schedule # 18427
UH245: TR 2:30-3:45

Prof.: Douglas J. Eernisse

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Office Hrs.: Monday and Tues. 10:00 – 12:30

Course Web Home Page: <http://biology.fullerton.edu/hol/>

Prerequisites: This course is an upper-division Honors Seminar in Natural Sciences and Mathematics and as such it is open only to students in the University Honors Program who have completed either GE category III.A.1. or III.A.2.

General Objectives: To gain an overview of the central role of evolution in all aspects of biology. Subjects emphasized include the history of organisms on earth, interpreting patterns of biodiversity, and understanding processes that might account for such diversity. Given the textbook we will be using, there will be a largely chronological presentation of the history of life on Earth with considerable emphasis on vertebrate animals, both living and extinct, to illustrate evolutionary patterns and processes. HONR 301T is a variable topics seminar that is approved for GE category III.A.3 (see p. 6).

Required Materials: One textbook is required, *History of Life* (hereafter abbreviated **HOL**), 4th Edition, © 2004, by Richard Cowen. In order to introduce evolutionary concepts and current topics that are not directly covered in this text, selected additional photocopied reading assignments will be assigned and distributed as hand-outs. This course will also involve frequent use of extensive web links related to the covered text topics have been developed and will be maintained and expanded during this semester. If you do not have home or wireless access to the web or if you prefer the much faster interface of an on-campus connection, you are encouraged to use computers or computer docking stations in the Honors Program Study Lounge. Otherwise, you can use the campus Titan Lab: http://www.fullerton.edu/it/services/Computing_Labs/TitanLab/. See: <http://www.fullerton.edu/it/services/Networks/Wireless/index.asp> for campus Wi-Fi sites or other free local wireless networks, including the free Wi-Fi zone for the entire downtown Fullerton area (see: <http://www.fullertonwireless.com/>) or at various cafes and restaurants listed at <http://www.wififreespot.com/ca.html>. Material on our course web site is considered an integral part of this course, not just supplementary material, so expect that I might ask you in lecture to consult particular course web pages or linked web sites, or may post reviews for exams to the web site. In addition to our main course website we might use other web sites, as announced in class. Even though there is a large amount of

material on the web pages I have set up for this course, especially more links to other websites than I expect you to ever view completely, I will expect that when I draw your attention to particular material or links on the web during lecture then this material will be considered fair game for quizzes and exams, or as primary research resources useful for preparing various oral presentations you will be assigned during the course of the semester. Some assignments and quizzes will require you to fill out a web form to be submitted electronically when you are finished. It is recommended that you purchase a flash drive for storing anything that you need to save in conjunction with these web assignments or resources. Some additional reading assignments will be provided to you as handouts. The tentative number of such extra handout assignments indicated on the web-based course schedule will likely be revised and updated during the semester when I decide that more or fewer are required. The former will be used for exams and possibly some of the quizzes, whereas the latter will be used for other quizzes and for the online cladogram assignments. In general, expect me to give a brief quiz at the start or at sometime during many or most scheduled class times, so you will **always** need to be ready with a blank sheet of paper for **every** class session.

Grades: The following summarizes approximate points you can earn towards your final grade (estimates for the number of quizzes and assignments are tentative):

2 Midterms (50 pts.), 1 Final – 1/2 comprehensive (100 pts.)	200
Quizzes (5 pts. each)	60 to 80
Take home cladogram assignments (10 pts. each)	30
Take home essay assignments with opportunities for revision (each 40 pts.)	80
Participation as Discussion Co-leader (3 to 6 per student)	60 to 90
In-class activities (5 to 10 pts.)	20 to 50
Web assignments including cladogram exercises	30 to 60
LaBrea Tarpits fieldtrip assignment	40
Regular attendance (estimated from quizzes or roll taking)	30
Regular participation in discussions (estimated by instructor)	50
Total Points	up to 700

The following +/- grading scale will be used in this course (% of total available points):

A	92-100	C	69-71
A-	88-91	C-	66-68
B+	85-87	D+	60-65
B	80-85	D	55-59
B-	77-79	F	0-54
C+	72-76		

These cut-off levels are based on my experience in how students perform in all of my classes, and will never be raised but they might be lowered in your favor. Lowering the cut-off scores on the point distributions in the class would depend on my own assessment of how the final scores reflect the overall performance of students in the class. In general, I prefer to adjust individual exams instead of the final cut-off scores if I find that the exam was more difficult than intended it to be.

As indicated on the attached schedule, this course will be divided into three units. There will be two mid-term exams (50 points each) at the end of Units 1 and 2 and a final exam (100 points) in the regularly scheduled time during finals week. The final exam that will be roughly one half (50 points) emphasizing Unit 3 and one half (50 points) emphasizing comprehensive material. Note that exams are a relatively small proportion of the total points that you can earn in this course. Regular in-class or online quizzes will generally be worth 5 points each. Expect that you will be asked to complete a brief quiz at the beginning of each class session (although some sessions will have no quiz). In order to prepare for the exams or quizzes, expect to be asked identical or similar questions to the review questions posted online on the website or questions that I pose at my summary of student-led discussions. Exam questions will also be variations on these questions, including those already asked as quiz questions.

There will also be two sorts of take-home assignments, cladogram/classification worksheets (10 points each) and essay writing assignments (25 points each). The latter essays will be returned with an opportunity for revision to earn up to 15 additional points (40 points total possible) including the opportunity to earn up to half of the points missed when first evaluated. A rubric will be used to assess whether the writing is competent and whether it clearly expresses the complex data or ideas in an organized manner. Also expect two or more in-class activities (5 or 10 points each) related to lecture assignments or activities, probably performed in small groups. Such activities are good opportunities to cooperate with other students to boost your individual percentage of total points earned, and thus improve your individual course grade. Because this is a seminar course, you will be expected not only to be a regular participant in discussions but will also be expected to lead parts of three to six class meetings, generally with one or more other assigned co-leader. You will begin each of these sessions with a brief presentation in order to stimulate class discussion. Written assignments must be turned in at the beginning of the lecture on the announced due date, with late papers subject to a deduction starting at 10 percent and increasing with time. Still, it is much better to turn in an assignment late than not at all. A physician's note may be required in the event that you have missed an exam due to illness. In this case, I will decide whether you are entitled to either take a make-up exam or whether I will pro-rate your other scores to assign a score for the missed exam. There will be no make-up quizzes and it is typical for most students to miss one or two quizzes, but I might pro-rate one or more missed score(s) if you have a valid excused absence.

During Unit 3, you will be required to visit the Rancho LaBrea Tar pits Museum in Los Angeles and complete a corresponding field trip write-up assignment (40 points total possible). This field trip can be completed on your own time but in the past I have arranged target dates and times so that students can cooperate on completing the assignment. You are required to attach an entrance receipt to your completed assignment to document that you were there in person. Remember to bring your student identification to receive discounted admission.

Assessment: In many cases I will rely on rubrics. These will either be provided as handouts in class or as an optional self-assessment web form.

A modest number of extra credit points will be awarded for attending relevant seminars or other presentation events related to topics we cover. These will include any seminars in the Biology Seminar Series (W at 4 p.m., MH-513; see <http://biology.fullerton.edu/events/>) and I will announce other special seminars that qualify. I generally am flexible in the sorts of presentation events that I will accept but only rarely will approve a “article report” or a report based on watching a DVD or video. You will also need to turn in a seminar write-up to document your attendance. The seminar write-ups will be worth up to 10 possible points for up to a maximum of two seminars that you attend (20 points total). In case you cannot attend either the regular or special seminars, due to schedule conflicts, you are encouraged to seek out other relevant seminars to attend. See the bulletin board outside MH287 for many posted seminars that will likely be permitted as substitutes. I will distribute two write-up forms early in the semester but you can also complete these on your own paper or submit them by email. A suggested approach for your write-up is to answer the following questions (although I am quite flexible): 1) What is the basic take-home message? 2) What question(s) would (or did) you ask the speaker? and 3) How can you suggest that this research might be extended? Word processor output is highly preferred over hand-written notes taken during the seminar itself. Take notes but then organize and synthesize in your write-up. Remember, your write-ups need to have thoughtful responses to the above questions or a comparable set of questions of your choosing in order to get the maximum extra credit points possible.

Assignments: Expect there to be a considerable amount of reading, selected writing assignments, and much seminar-format discussion throughout this course. Students will lead a portion of most of the class sessions after the first two weeks. You will be expected to read nearly the entire text and a modest number of additional handout articles. If the idea of completing regular reading with written quiz responses or take-home assignments does not appeal to you then PLEASE drop the course now while the process is relatively painless. You will be expected to have read the assigned reading **before** each lecture and have engaged in **active** (not passive) learning. There will not always be a right or wrong answer to an assigned question. I do not want to read exactly what is in your reading. I want you to use your own words and there should be original discussion of the reading material. For those times that I might assign take-home writing assignments, if I find that you have essentially copied portions of the book with minimal rearrangements then you will receive a low score. The use of word processors for completing writing assignments is strongly encouraged. Hand-written papers that are difficult to read will be noted as such and it will be exceedingly difficult to receive an excellent score on them, especially after I have warned you once that I am finding your homework difficult to read. The use of spell-checkers is encouraged. Likewise, please do your very best to make the writing in your regular quizzes and exam essay responses as legible as possible. Please understand that it could take up to a couple of weeks to return a written essay assignment, due to the amount of time devoted to each essay’s grading. You will be given an opportunity to earn back subtracted points by rewriting portions of at least one essay, in accordance with campus General Education writing goals (see below). Your proofreading and rewriting efforts will consequently reap just rewards in essay points assigned. Please

always feel free to discuss your questions on comments I write on your essays or other exam/quiz questions, especially if you do not understand the concepts behind the question. I encourage you to email questions to me at any time during the semester, and I will generally answer your email well within 48 hours of receipt.

Outline of Course Objectives: The subject of evolution is central to understanding all aspects of biology, or the study of living organisms on planet Earth. After first introducing general aspects of evolutionary theory through handout readings (TBA), we will proceed through the history of life, as the HOL text does, in a chronological manner. The end of Unit 1 will include an overview of the origin of our planet and life as we know it, the evidence that all living organisms can be traced back to a common ancestor of life on primeval Earth. Unit 2 will start with the diversification episodes or large animals, and early aquatic vertebrates, mostly over 500 million years ago. Also in Unit 2 will be the Terrestrial amniotes (reptiles and mammals) of the Mesozoic Era, including the long domination of land communities by dinosaurs. Unit 3 will focus on the Cenozoic Era, when birds and then mammals diversified to occupy ecological opportunities vacated by the large dinosaurs, and this last Unit will end with consideration of human evolution. We will usually cover general topics first, followed by more specific ones. We will start with Earth's earliest organisms and living descendent microorganisms and end with large organisms such as ourselves. We will start by characterizing the major lineages of living organisms and will end with emphasis on those animals with backbones that we are understandably preoccupied with. Likewise, HOL starts with life in the sea and ends with life on land. This order is not intended to imply that evolution progresses as if climbing the rungs of a ladder, from ooze to us! Quite the contrary, we will present a very different "bushy" view of evolution. One tip that will certainly help in your performance in this course: Devote time early to learn how to interpret and manipulate trees (cladograms). This investment in time will pay off because those students who master cladograms early will have an edge on those who resist because of their inherent conceptual nature.

Rules About Withdrawing from Courses: CSUF has a policy (UPS 300.016) regarding withdrawal from classes. After the first census date, students may be granted withdrawal (i.e., to receive a "W" grade) only by presentation of documentation outlining a physical, medical or emotional condition that prevents completion of the course. Poor academic performance is not evidence of a serious reason for withdrawal. Students unable to produce official documentation will be required to take the grade they have earned in the class.

Special Needs: If you are a student with documented special needs, you have the right to get assistance via the Disabled Student Services Offices, UH 101, (714) 278-3117 or as documented at <http://www.fullerton.edu/disabledservices/>.

Classroom Behavior: You are expected to participate in classroom activities. Late entering or early exiting class during the class period is disruptive and should be minimized. Likewise, the use of electronic devices (cell phones, pagers, etc) during class is not permitted. You can use laptops for class use but not for other purposes, including checking email, or surfing the web.

Academic Integrity: I assume that by remaining enrolled in this class your intentions are HONORABLE, and that you accept responsibility for dutiful attendance, earnest effort toward understanding the subject and pledge that you will not cheat on exams.

- Plagiarism is the unacknowledged use of another's words or ideas as your own. Use your own words when writing. Use quotation marks and cite the source of any phrase that you "use". Changing one or two words in a sentence is still plagiarism. Just because you referenced a source does not give you the right to insert segments, verbatim, into papers you write. You must put the information into your own words. I may rely on a course account with TurnItIn.com (<http://turnitin.com>) in order to check that you have not plagiarized your essays or other required written assignments.

- Cheating is the use of another's work as your own. Copying another student's homework, looking at another student's exam, and using information from another student to enhance your performance on a task are all examples of cheating.

Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. University policies are strictly enforced in this course. Please familiarize yourself with the academic integrity guidelines found in the current student handbook.

General Education Goals for Student Learning:

The following are the overall GE goals for courses in Natural Sciences, based on University Policy Statement 411.201:

http://www.fullerton.edu/catalogprevious/catalog2005-07/academic_programs/generaledu.asp

- To understand how different themes of science make connections within and between the different scientific disciplines.
- To apply scientific methodology through active experimental methods and experiences (laboratory/activity).
- To evaluate the validity and limitations of theories and scientific claims in interpreting experimental results.
- To understand the dynamic and evolving nature of the sciences.
- To recognize the importance of scientific paradigms and methods in understanding scientific concepts.
- To solve theoretical or experimental problems that require knowledge of science concepts and scientific reasoning.
- To understand the issues raised by science for contemporary society and to appreciate the relevance and application of science in everyday life.
- To understand that there is synergism between science and technology – advances in science drive new technologies and new technologies make possible new advances in science. The principles of science provide the underpinnings of technology and, consequently, technology should be taught in conjunction with content directly linked to the scientific disciplines.

This course satisfies category IIIA3, Implications and Explorations in Mathematics and Natural Sciences. Courses in this category draw upon, integrate, apply and extend knowledge and skills previously acquired in Category III.A. Disciplinary Learning: Mathematics and Natural Sciences. These courses have a substantial scientific and/or mathematical content and require completion of appropriate courses in Categories III.A.1 and III.A.2 as prerequisites to enrollment. In addition, courses in III.A.3. Implications and Explorations in Mathematics and Natural Sciences include the following goals for student learning:

- To understand broad, unifying themes in mathematics and/or science from cross-disciplinary perspectives.
- To solve complex problems that require mathematical and/or scientific reasoning.
- To relate mathematics and/or science to significant social problems or to other related disciplines.
- When deemed appropriate, to apply disciplinary concepts from mathematics and the natural sciences in a variety of settings, such as community-based learning sites and activities.

Classroom Safety Briefing:

- In the event of an emergency such as earthquake or fire:
 - Take all your personal belongings and leave the classroom. Make your way to the nearest available stairway.
 - Do not use the elevator. They may not be working once the alarm sounds.
 - Go to the lawn area towards Nutwood Avenue. Stay with class members for further instruction.
 - For additional information on exits, fire alarms and telephones, **Building Evacuation Maps** are located near each elevator.
 - Anyone who may have difficulty evacuating the building, please see me after class.
- Dial 911 on any campus phone, pay phone, or blue emergency phones to connect directly to University Police. Dialing 911 on your cell phone will connect with the Highway Patrol. Tell CHP dispatcher that CSUF Police is the responding agency. Stay on the line until asked to hang up.
- There is no smoking within 20 feet of every campus building.

Honors Seminar on History of Life

Honors 301T - Prof. Eernisse

California State University, Fullerton

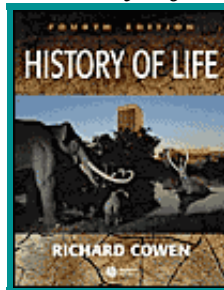
Schedule

Fall 2007

Schedule Number 18427
Tues/Thurs 2:30-3:45 UH245

Provisional Lecture and Readings Outline

All chapter references are to either
An Introduction to Biological Evolution (BE; provided as handouts),
Evolution: The Triumph of an Idea (EV; provided as handouts),
 or the 4th Edition of *History of Life* (HOL; see below)



Buy *History of Life* at [Titan Shops On-line](#) or at [Amazon.com](#) or at [Blackwell Scientific](#)

WEEK	DATE	LECTURE TOPIC	ASSIGNMENT
1	Aug 21 Aug 23	Introduction to Evolution and the History of Life Evolution of Evolution (Handout: BE Ch. 1, pp. 3-14)	BE Ch. 1: 1-10
2	Aug 28 Aug 30	Time (Handouts: BE Ch. 2, pp. 17-30; and EV Ch. 3, pp. 57-71) Hereditry (BE Ch. 3, pp. 33-47; and EV Ch. 4, pp. 73-86)	BE Ch. 2: 1-13 and EV Ch. 3:1-5 BE Ch. 3: 1-14 and EV Ch. 4:1-7
3	Sep 4 Sep 6	Emergence of Life (BE Ch. 4, pp. 49-61; and EV Ch. 4, pp. 86-94) (Essay Assignment 1 Available) The Origin of Life	BE Ch. 4 PQ 1-14 and EV Ch. 4:8-11 HOL Ch. 1
4	Sep 11 Sep 13	Earth's Earliest Life (Essay Assignment 1 Due; Cladogram Assignm 1 Available Here) Phylogeny	HOL Ch. 2 Hand-out (R&M Ch. 2.1 to 2.11)
5	Sep 18 Sep 20	Earth's Earliest Life (Cladogram Assignm 1 Due, Assignm 2 Available) Sex and Nuclei: Eukaryotes	HOL Ch. 2 HOL Ch. 3 HOL Ch. 3 HOL Ch. 4
6	Sep 25 Sep 27	Phylogenetic Analysis (Essay Assignment 1 Revisions Due; Cladogram Assignm. 2 Due) The Evolution of Animals	R&M Ch. 2.12 to 2.17 and TBA) HOL Ch. 4

7	Oct 2 Oct 4	Midterm 1 Cambrian Explosion	Handouts, HOL 1-4 HOL Ch. 5
8	Oct 9 Oct 11	Life in a Changing World and Extinction The Early Vertebrates (Cladogram Assignm. 3 Available)	HOL Ch. 6 HOL Ch. 7
9	Oct 16 Oct 18	Leaving the Water Tetrapods & Amniotes; Reptiles and Thermoregulation	HOL Ch. 8 HOL Ch. 9 - Ch. 10
10	Oct 23 Oct 25	Triassic Takeover (Cladogram Assignm. 3 Due) Dinosaurs	HOL Ch. 11 HOL Ch. 12
11	Oct 30 Nov 1	Evolution of Flight Midterm 2 (LaBrea Tarpits Field Trip Assignment Distributed)	HOL Ch. 13 HOL Chs. 5-13
12	Nov 6 Nov 8	The Modernization of Land and Sea (Essay Assignment 2 Available) The Origin of Mammals & The End of (Non-Avian) Dinosaurs	HOL Ch. 14 HOL Ch. 15 - Ch. 16
13	Nov 13 Nov 15	Cenozoic Mammals: Origins, Guilds, and Trends) Geography and Evolution (Essay Assignment 2 Due)	HOL Ch. 17 HOL Ch. 18
	Nov 19-23	Fall Break - No Classes	
14	Nov 27 Nov 29	Primates Evolving Toward Humans	HOL Ch. 19 HOL Ch. 20
15	Dec 4 Dec 6	Life in the Ice Age (Essay Assignment 2 Revisions Due) Review	HOL Ch. 21 HOL Chs. 14-21
Finals	Dec 13	Final Exam (Approx. 1/2 Units 1&2; 1/2 Unit 3)	2:30-4:20 UH245

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- [Biological Science Home Page](#)
- [Links for Evolution by Taxon \(outdated!\)](#)
- [Links for Evolution by Topic \(outdated!\)](#)

This page was last updated August 21, 2007 - de

Web site address: <http://biology.fullerton.edu/hol/>