

**The Ohio State University**  
**Colleges of the Arts and Sciences New Course Request**

School of Earth Sciences \_\_\_\_\_  
 Academic Unit  
 Geological Sciences \_\_\_\_\_  
 Book 3 Listing (e.g., Portuguese)  
 315 Evolution: Contemporary and Interdisciplinary Perspectives \_\_\_\_\_  
 Number Title \_\_\_\_\_  
 Evol: Interdiscipl \_\_\_\_\_ U \_\_\_\_\_ 5 \_\_\_\_\_  
 18-Character Title Abbreviation \_\_\_\_\_ Level \_\_\_\_\_ Credit Hours \_\_\_\_\_  
 Summer Autumn Winter Spring X \_\_\_\_\_ Year 2008 \_\_\_\_\_  
 Proposed effective date, choose one quarter and put an "X" after it; and fill in the year. See the OAA curriculum manual for deadlines.

**A. Course Offerings Bulletin Information**

Follow the instructions in the OAA curriculum manual. If this is a course with decimal subdivisions, then use one New Course Request form for the generic information that will apply to all subdivisions; and use separate forms for each new decimal subdivision, including on each form the information that is unique to that subdivision. If the course offered is less than a quarter or a term, please complete the Flexibly Scheduled/Off-Campus/Workshop Request form.

Description (*not to exceed 25 words*): Develop an understanding of the interplay of different disciplinary approaches to evolutionary studies \_\_\_\_\_

Quarter offered: Spring \_\_\_\_\_ Distribution of class time/contact hours: 2.2hr \_\_\_\_\_  
 Quarter and contact/class time hours information should be omitted from Book 3 publication (yes or no): \_\_\_\_\_

Prerequisite(s): one biology, one anthropology, or one earth sciences course \_\_\_\_\_

Exclusion or limiting clause: \_\_\_\_\_

Repeatable to a maximum of \_\_\_\_\_ credit hours.

Cross-listed with: Anthropology 315 \_\_\_\_\_

Grade Option (Please check): Letter  S/U  Progress  What course is last in the series? \_\_\_\_\_

Honors Statement: Yes  No  GEC: Yes  No  Admission Condition  
 Off-Campus: Yes  No  EM: Yes  No  Course: Yes  No   
 Embedded Honors Statement: Yes  No

Other General Course Information: \_\_\_\_\_  
 (e.g. "Taught in English." "Credit does not count toward BSBA degree.") \_\_\_\_\_

**B. General Information**

Subject Code \_\_\_\_\_ Subsidy Level (V, G, T, B, M, D, or P) \_\_\_\_\_  
 If you have questions, please email Jed Dickhaut at [dickhaut.1@osu.edu](mailto:dickhaut.1@osu.edu).

1. Provide the rationale for proposing this course:  
 GS 315/Anthro 315 is the foundational course for a Minor in Interdisciplinary Evolutionary Studies \_\_\_\_\_

2. Please list Majors/Minors affected by the creation of this new course. Attach revisions of all affected programs.  
 This course is (check one):  required on major(s)/minor(s)  A choice on major(s)/minor(s)  
 An elective within major(s)/minor(s)  A general elective: \_\_\_\_\_

3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course.

No adjustments necessary

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?

Yes  No  List: cross listed with Anthro 315 being submitted simultaneously

5. If this course is part of a sequence, list the number of the other course(s) in the sequence:

6. Expected section size: 30 Proposed number of sections per year: one

7. Do you want prerequisites enforced electronically (see OAA manual for what can be enforced)? Yes  No

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms):  
Not Applicable

EEOB, Anthropology, Entomology

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA curriculum manual and e-mail to [ascurofc@osu.edu](mailto:ascurofc@osu.edu).

**Approval Process** The signatures on the lines in ALL CAPS ( e.g. ACADEMIC UNIT) are required.

	Printed Name	Date
1. Academic Unit Undergraduate Studies Committee Chair	Steven K. Lower	5/16/07
2. Academic Unit Graduate Studies Committee Chair	SES CURRICULUM COMMITTEE CHAIR # LAWRENCE KRISSEK	5/14/2007
3. ACADEMIC UNIT CHAIR/DIRECTOR	LAWRENCE KRISSEK	
4. After the Academic Unit Chair/Director signs the request, forward the form to the ASC Curriculum Office, 105 Brown Hall, 190 West 17 <sup>th</sup> Ave. or fax it to 688-5578. Attach the syllabus and any supporting documentation in an e-mail to <a href="mailto:ascurofc@osu.edu">ascurofc@osu.edu</a> . The ASC Curriculum Office will forward the request to the appropriate committee.		
5. COLLEGE CURRICULUM COMMITTEE	Printed Name	Date
6. ARTS AND SCIENCES EXECUTIVE DEAN	Printed Name	Date
7. Graduate School (if appropriate)	Printed Name	Date
8. University Honors Center (if appropriate)	Printed Name	Date
9. Office of International Education (if appropriate)	Printed Name	Date
10. ACADEMIC AFFAIRS	Printed Name	Date

**GEOLOGICAL SCIENCES 315**  
**EVOLUTION: CONTEMPORARY AND INTERDISCIPLINARY**  
**PERSPECTIVES**  
(Spring 2008)

Instructor: William I. Ausich	Office Hours: xxxx-xxxx MTWF or by appointment
Office: 160D Orton Hall	Telephone: 292-3353
E-mail: ausich.1@osu.edu	

Instructor: Jeffrey K. McKee	Office Hours: xxxx-xxxx MTWF or by appointment
Office: 115 Lord Hall	Telephone: 292-2745
E-mail: mckee.71@osu.edu	

Lectures: xxxxx

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**OVERVIEW:** Evolutionary studies cross traditional disciplinary boundaries, unifying many sciences under one paradigm. This course serves as an introduction to the ubiquity of evolutionary sciences. The instructors provide historical context, present a wealth of evidence for species origins and changes, and explore evolutionary implications and applications.

**OBJECTIVES:** The students should become familiar with the historical context, principles, mechanisms, applications, and general importance of evolution in its broadest scientific sense.

**READING:** to be tailored to each offering of the course. (See potential readings below.)

**FIELD TRIP:** One-day weekend trip to examine and collect fossils from the bedrock of Ohio and/or surrounding states

**EVALUATION:** Grades will be assigned on the basis of a midterm exam and a comprehensive final exam worth 40% each. Exams will cover both lecture material and readings on the syllabus. An assigned essay worth 20% of the total will be based on an assessment of issues in the current academic literature; it will be a minimum of ten typed pages, and include at least 5 references from sources other than the regular assigned readings.

Grading percentages: Final grades will be distributed as follows: A 92-100; A- 90-91; B+ 88-89; B 82-87; B- 80-81; C+ 78-79; C 72-77; C- 70-71; D+ 68-69; D 60-67; E <60.

*Students with disabilities* are responsible for making their needs known to the instructor, and are responsible for seeking available assistance, as soon as possible, and certainly prior to the first examination.

*Academic Misconduct:* All students should become familiar with the rules governing alleged academic misconduct. All students should be familiar with what constitutes academic misconduct, especially as it pertains to plagiarism and test taking. Ignorance of the rules governing academic misconduct or ignorance of what constitutes academic misconduct

is not an acceptable defense. Alleged cases of academic misconduct are referred to the proper university committees.

*Disputed Term Paper Grades:* In case of a dispute concerning a term paper grade, the student is encouraged to meet with the instructor to reconcile the matter. At that time, the student must present notes used in writing the paper, earlier drafts and copies of bibliographic material cited.

## COURSE OUTLINE

### Week

- 1 **The Evolution of Evolutionary theory**  
x/x - Origins – Course introduction and Overview.  
x/x - “Evolutionary” thought before Darwin.
- 2 **The Evolution Revolution**  
x/x - Darwin & Wallace – Origin of Species by means of Natural Selection.  
x/x - The “Evolutionary Synthesis” and beyond.  
*Reading:* Darwin, 1859 – selections; \*\*\*
- 3-4 **Evolution written in stone**  
x/x - Origins of Life – Geological evidence and biochemical hypotheses.  
x/x - Precambrian fossils, the Cambrian trickle – establishing the animal Bauplan.  
*Reading:* \*\*\*  
  
x/x - A Brief History of Time – plant and animal evolution over the ages  
x/x - One brief shining moment – human evolution among the primates.  
*Reading:* \*\*\*
- 5 **Testing Evolution**  
x/x - Teeth, teeth, teeth; Angiosperms and the fruits of evolution  
x/x - **midterm exam**
- 6 **Nuts and Bolts**  
x/x - The genetic basis of evolution  
x/x - Ontogeny (kind of) recapitulates phylogeny – embryological development  
*Reading:* \*\*\*\*  
Essays assigned. (Essays drawn from scientific literature in consultation with lecturers)
- 7 **Evolution meets Mathematics**  
x/x - Game theory and the origins of sex  
x/x - Computer modeling of evolutionary processes  
*Reading:* \*\*\*\*
- 8 **Evolution and Intelligent Design**  
x/x - Evolutionary algorithms in engineering.  
x/x - “Frankenfoods” – genetically modified plants and animals.  
*Reading:* \*\*\*
- 9 **The Diversity of Life**  
x/x - Evolutionary ecology and Co-evolution.

x/x - Extinction.

Reading: \*\*\*

**\*Essays due 11/22**

10 **Predicting and shaping the future.**

x/x - It's the end of the world as we know it, and I feel fine?

x/x - Evolution education in k-16 classrooms

Reading: \*\*\*

**Final Exam \*\*\*\*** (Note day and time!!!) (Covers all work, focusing on weeks 5-10)

**Possible Readings Sources:**

**General**

Howard, D. J., and S. H. Berlocher. 1998. *Endless Forms: Species and Speciation*. Oxford University Press, New York.

Mayr, E. 1991. *One long argument : Charles Darwin and the genesis of modern evolutionary thought*. Harvard University Press, Cambridge.

Zimmer, C. 2001. *Evolution The Triumph of an Idea*. Harper Collins, 364 p.

**Natural Selection**

Darwin, C. 1859. *The Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life*. (Chapter 4  $\equiv$  Natural Selection; or the Survival of the Fittest)

Weiner, J. 1994. *The Beak of the Finch*. Vintage Books; New York, 332 p.

**Speciation**

Mayr, E. 1963. *Populations, Species, and Evolution*. Harvard University Press; Cambridge, Massachusetts. 453p. (Ch. 15, p. 247-261; Ch. 16, p. 278-295)

Eldredge, N. and S. J. Gould. 1972. Punctuated equilibria: an alternative to phyletic gradualism, p. 82-115. In T. J. M. Schopf (ed.), *Models of Paleobiology*. Freeman, Cooper & Co., San Francisco.

**Macroevolution**

Stanley, S. M. 1979. *Macroevolution: Pattern and Process*. W. H. Freeman, San Francisco, 332 p. (Chapter 7)

Jablonski, D. 1986. Larval ecology and macroevolution in marine invertebrates. *Bulletin of Marine Science*, 39:565-587.

**The Structure of Evolutionary Theory**

Gould, S. J. 2002. *The Structure of Evolutionary Theory*. Belknap Press of Harvard University Press, Cambridge, 1433 p. (p. 765-784).

**Developmental Biology**

Freeman, S., and J.C. Herron. 2003. *Evolutionary Analysis* (Third Edition). Prentice-Hall, New York, 802 p. [p. 701-714; p. 714-723]