GEOLOGY 422K (#27480-27485) – PALEOBIOLOGY (W Flag)

INSTRUCTOR - Dr. James Sprinkle - e-mail echino@jsg.utexas.edu
Office - JGB 4.106; mailbox in EPS 1.130A; office phone 471-4264
Office Hours - Tu 11:30AM-12:30PM, F 12-1PM, MW 1-2 PM; other times by appoint.

TAs –Ashley Latimer (latimer.ae@gmail.com)
Office in JGB 3.310A; Office hours in Paleo. Lab, JGB 3.116; hours to be selected.

PREREQUISITES - Grades of C or better in GEO 404C or 405, in GEO 416M, and in 3-4 hours of introductory biology courses (preferably BIO 301M, or BIO 212 + 213); requirement for GEO 416M usually waived for non-Geology majors.

COURSE TOPICS and OBJECTIVES - See Course Schedule, Goals & Objectives, & Lecture Outlines at GEO 422K Blackboard website <https://courses.utexas.edu/webapps/portal/frameset.jsp>

TEXTBOOKS - Lecture - Prothero, 2003, Bringing Fossils to Life (2nd ed., PB): McGraw-Hill.
Lab - Walton & Sprinkle, 1984, 2002, Lab Manual for Paleobiology (PB): Jenn's Copy & Binding (on the Drag)

COURSE READING - Other reading assignments are at the Geology Library (JGB 4.202) Front Desk (books on reserve) or in the Open Files in the back corner of the Reading Room (separates).

FIELD TRIPS - 1. Austin & Waco area Cretaceous field trip, Sat., Sept. 29th, all day (aw. game)
2. Brownwood area Pennsylvanian field trip, Sat., Oct. 27th, all day (aw. game)
Students must have health insurance to go on Geology Dept. field trips.

COURSE GRADES AND EXAMS - Grades will be determined in the following manner:

Lecture	- First Exam – Tues. Oct. 16th	25% \ = 50%
	- Second Exam – Thurs., Dec. 6th	25% /
	(No Final Exam this year)	
Lab	- Midterm Exam – 3rd week of Oct.	9% \
	- Lab Final - week of Dec. 3rd	9% \
	- 2 Field Trip Reports & Faunal Lists	10+10% } = 50%
	- Laboratory Assignments & Quizzes	5% /
	- Abstract project & Student grading	4 + 3% /

Lecture exams may include any of the following types of questions: multiple choice, matching, complete-the-answer, definitions, problems, drawings or charts, short- to intermediate-length essays, and text-editing. Exams are closed-book, are medium in difficulty, and typically are graded by comparing your answer to a written-out key and assigning points accordingly. Lecture exams will be cumulative, covering all previous work up to the time of that exam. A make-up exam for a missed lecture exam may be given at the instructor's discretion up to the time of the next lecture period when the corrected exams are usually returned. Marks will be carried through as numbers, added up at the end of the course, and then curved to get a final letter grade. Last fall's average mark was a 72.6 (top mark 85.6, lowest mark 0 [no grades]), and there were 4 A's, 5 B's, 6 C's, 1 D, & 1 F out of a class of 17, for a 2.59 overall class GPA.

ACADEMIC DISHONESTY - Although students are encouraged to work together in the field and lab, all written work turned in for a grade (exams, reports, lists) must be your own work; this is especially important for a Writing Flag Course. There are severe penalties for cheating (on exams), plagiarism (using someone else's ideas or written work without citation credit in a report), or collusion (turning in another student's work as your own in a faunal list or report). See the UT Honor Code at <http://registrar.utexas.edu/catalogs/gi09-10/ch01/index.html>

ACADEMIC POLICIES - No special policy on drops, incompletes, or time extensions; see General Information Catalog, Part V. The last day to drop the course with a possible refund is Sept. 14, 2012; the last day to drop the course or withdraw from the University is Nov. 6, 2012.

STUDENTS WITH DISABILITIES may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259, or http://www.utexas.edu/diversity/ddce/ssd/

ACCOMMODATIONS FOR RELIGIOUS HOLIDAYS – By UT Austin policy, a student must notify the instructor of a pending absence from class at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a lab assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missing work within a reasonable time after the absence.

GEOLOGY 422K - PALEOBIOLOGY
FALL, 2012 - DR. SPRINKLE

Thursday, Aug. 30 — Introduction to the study of fossils; how good is the fossil record?
- Prothero, p. vii-viii, p. 5-8, p. 18
- Paul, 1985, p. 7-14

Tuesday, Sept. 4 — Fossils and time – basic definitions
- Prothero, p. 169-185
- Eicher, p. 60-65, p. 99-104

Thursday, Sept. 6 — Biostratigraphy – specific examples
- Raup & Stanley, p. 209-225
- Eicher, p. 104-110

Tuesday, Sept. 11 — Correlation problems, biomeres, and ranges of major groups
- Raup & Stanley, p. 225-229
- Eicher, p. 68-75
- Simpson & Beck, p. 727-737

Thursday, Sept. 13 — Fossils and environments – basic parameters
- Beerbower, p. 33-34
- McAlester, p. 44-52, p. 69-70
- Laporte, p. 68-78
- Extra - read Ager, p. 3-12 for introduction to paleoecology

Tuesday, Sept. 18 — Ancient environments and their preserved organisms
- Prothero, p. 119-122, p. 124-129
- Laporte, p. 2-11

*Thursday, Sept. 20 — Abstract Project passed out + Paleoecologic analysis – specific examples
- Raup & Stanley, p. 239-245, p. 338-342
- Ager, p. 57-72

*Tuesday, Sept. 25 — First draft of Abstract due in class + Fossil communities – structure and evolution
- Ziegler, p. 680-685
- Bretsky, p. 1231-1233
- Broadhead, p. 263-277

*Thursday, Sept. 27 — Edited Abstracts returned + Preview of 1st field trip + Paleontologists & their work I – Seilacher, Chamberlain, Droser, and Bottjer's trace fossils
- Prothero, p. 403-432
- Bottjer and Droser, p. 130-141

*Saturday, Sept. 29 — All-day field trip to Austin & Waco to collect Cretaceous fossils for a biostratigraphy project (1st field trip report)

*Tuesday, Oct. 2 — Final draft of Abstract due in class + Banks, reefs, and mud mounds
- Prothero, p. 227-229
- Laporte, p. 29-34, p. 45-47
- Newell, p. 54-65

Thursday, Oct. 4 Paleobiogeography and plate tectonics
Prothero, p. 149-167

*Tuesday, Oct. 9 1st Draft of Field Trip Report due in class + Classification and study of fossils – species and genera
Prothero, p. 39-40, p. 47-49
Raup & Stanley, p. 114-117, p. 124-128
Gould, l975, p. 824-826
Extra - see Mayr & Ashlock, p. 23-28 for more information on species.

*Thursday, Oct. 11 Students return Field Trip Report 1st drafts in class + Speciation in the fossil record
Eldredge & Gould, p. 82-114
Gould, 1991, p. 12-18
Freeman & Herron, 2000, p. 521-526
Extra - see Gould and Eldredge, l977 and 1986, and Ruse, 1989, for more recent work.

*Tuesday, Oct. 16 1st Hour Exam (25%)

*Thursday, Oct. 18 Instructor returns Field Trip Report 1st drafts + corrected exams + Evolution of higher taxa
Prothero, p. 49-55
Raup & Stanley, p. 129-138, p. 363-369
Stanley, l975, p. 646-650

*Tuesday, Oct. 23 Final Draft of Field Trip Report due in class + Extinctions in the fossil record
Raup & Sepkoski, p. 150l-1502
Raup, 1986, p. 1528-1533
Prothero, p. 81-92(top), 92(bottom)-95

Thursday, Oct. 25 Preview of Brownwood field trip + Size and growth in evolution
Raup & Stanley, p. 59-66, p. 352-356
Foote & Miller, 2006, p. 44-48 (+ Fig. 2.22)

*Saturday, Oct. 27 All-day field trip to Brownwood, Texas, area to study several Pennsylvanian marine faunal communities (2nd field trip report)

Tuesday, Oct. 30 Paleontologists and their work II – Raup's shell coiling
Raup & Stanley, p. 165-177

Thursday, Nov. 1 Precambrian life and atmospheric evolution
Schopf, p. 51-58
Stanley, l973, p. 1486-1488
Knoll, 2003, p. 89-98, p. 122-135

Tuesday, Nov. 6 No class (**GSA**)

*Thursday, Nov. 8 — First draft of 2nd Field Trip Report due in class + Ediacaran appearance & 'Cambrian Explosion' of metazoans
Glaessner, p. 50-69
Gould, 1998, p. 20-22, p. 58-65
Freeman & Herron, 2000, p. 511, p. 514-521

*Tuesday, Nov. 13 — Edited 2nd Field Trip Reports returned in class + Paleontologists and their work III – Porter's Seawater Chemistry & Calcite vs. Aragonite Metazoan Skeletons
Porter, 2006, p. 304
Porter, 2007, p. 1302

Thursday, Nov. 15 — Paleontologists and their work IV – Sprinkle's early echinoderms
Sprinkle, p. 15-26
Guensburg & Sprinkle, p. 407-410

*Tuesday, Nov. 20 — Final Draft of 2nd Field Trip Report due in class + Models in paleobiology
Raup, Gould, Schopf, & Simberloff, p. 525-539
Ross & Allmon, 1990, p. 1-17

Thursday, Nov. 22 — **THANKSGIVING VACATION**

Tuesday, Nov. 27 — Paleontologists and their work V – Sepkoski's evolutionary faunas
Sepkoski, p. 246-255
Prothero, p. 141-145

Thursday, Nov. 29 — Extraordinary fossils
Baird, p. 15-21
Nitecki, p. 22-26
Conway Morris & Whittington, p. 122-133
Chen, Bergstrom, Lindstrom, & Hou, p. 8-18

Tuesday, Dec. 4 — Paleontologists and their work VI – Bakker's 'warm-blooded' dinosaurs + Course evaluation
Bakker, 1971, p. 636-637, p. 645-656 (general sections)
Bakker, 1975, p. 58-78
Extra - see Bakker (1986) for additional information

*Thursday, Dec. 6 — 2nd Hour Exam (25%)