## **GEOLOGY 422K - PALEOBIOLOGY**

## FALL, 2008 - DR. SPRINKLE

Thursday, Aug. 28	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. 2	Fossils and time – basic definitions Prothero, p. 169-185 Eicher, p. 60-65, p. 99-104
Thursday, Sept. 4	Biostratigraphy – specific examples Raup & Stanley, p. 209-225 Eicher, p. 104-110
Tuesday, Sept. 9	Correlation problems, biomeres, and ranges of major groups Raup & Stanley, p. 225-229 Eicher, p. 68-75 Simpson & Beck, p. 727-737
Thursday, Sept. 11	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 an introduction to paleoecology
Tuesday, Sept. 16	Ancient environments and their preserved organisms Prothero, p. 119-122, p. 124-129 Laporte, p. 2-11
Thursday, Sept. 18	Paleoecologic analysis – specific examples Raup & Stanley, p. 239-245, p. 338-342 Ager, p. 57-72
Tuesday, Sept. 23	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. 25	Preview of Austin field trip + Paleontologists and their work I – Seilacher, Chamberlain, Droser, and Bottjer's trace fossils Prothero, p. 403-432 Bottjer and Droser, p. 130-141
*Saturday, Sept. 27	1-day field trip in Austin and Waco to collect Cretaceous fossils for a biostratigraphy project (field trip report)
Tuesday, Sept. 30	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. 2 Paleobiogeography and plate tectonics Prothero, p. 149-167 1st Hour Exam (15%) (GSA) \*Tuesday, Oct. 7 Classification and study of fossils – species and genera Thursday, Oct. 9 Prothero, p. 39-40, p. 47-49 Raup & Stanley, p. 114-117, p. 124-128 Gould, 1975, p. 824-826 Extra - see Mayr & Ashlock, p. 23-28 for more information on species. \*Tuesday, Oct. 14 Pass back and discuss corrected exams +  $1^{st}$  Field Trip Report due 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, 1977 and 1986, and Ruse, 1989, for more recent work. Thursday, Oct. 16 Evolution of higher taxa Prothero, p. 49-55 Raup & Stanley, p. 129-138, p. 363-369 Stanley, 1975, p. 646-650 Tuesday, Oct. 21 Extinctions in the fossil record Raup & Sepkoski, p. 1501-1502 Raup, 1986, p. 1528-1533 Prothero, p. 81-92(top), 92(bottom)-95 Thursday, Oct. 23 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. 25 1-day field trip to Brownwood, Texas, area to study several Pennsylvanian marine faunal communities (field trip report) Tuesday, Oct. 28 Paleontologists and their work II – Raup's shell coiling Raup & Stanley, p. 165-177 Thursday, Oct. 30 Precambrian life and atmospheric evolution Schopf, p. 51-58 Stanley, 1973, p. 1486-1488 Knoll, 2003, p. 89-98, p. 122-135 \*Tuesday, Nov. 4 <u>2nd Hour Exam</u> (15%) Pass back and discuss corrected exams + Ediacaran appearance & Thursday, Nov. 6 '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. 11 2nd Field Trip Report due in class + Paleontologists and their work

III – Sprinkle's early echinoderms

Sprinkle, p. 15-26

Guensburg & Sprinkle, p. 407-410

Thursday, Nov. 13 Models in paleobiology

Raup, Gould, Schopf, & Simberloff, p. 525-539

Ross & Allmon, 1990, p. 1-17

Tuesday, Nov. 18 Paleontologists and their work IV – Sepkoski's evolutionary faunas

Sepkoski, p. 246-255

Sepkoski & Sheehan, p. 673-674, p. 684-695

Prothero, p. 141-145

Thursday, Nov. 20 Extraordinary fossils

Baird, p. 15-21 Nitecki, p. 22-26

Conway Morris & Whittington, p. 122-133

Chen, Bergstrom, Lindstrom, & Hou, p. 8-18

Tuesday, Nov. 25 Paleontologists and their work V – Bakker's 'warm-blooded'

dinosaurs

Bakker, 1971, p. 636-637, p. 645-656 (general sections)

Bakker, 1975, p. 58-78

Extra - see Bakker (1986) for additional information

## THANKSGIVING VACATION

Tuesday, Dec. 2 Paleontologists and their work VI – Martin's Pleistocene-Recent

mammal extinctions

Martin, p. 969-974

Foote & Miller, 2006, p. 305-311

Thursday, Dec. 4 Catch up + Review for <u>Final Exam</u> (25%) + Course evaluation