GEOL 351/351L: FUNDAMENTALS OF PALEONTOLOGY

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REQUIRED---HANDOUTS PACKET: Please purchase from the campus bookstore a packet containing most of the handouts that you will need.
SUGGESTED TEXT BOOK: Prothero, D. R., 2004, Bringing Fossils to Life: 2nd ed., Boston, Massachusetts, McGraw-Hill, 503 p.
LECTURE READINGS: From time to time, there will be xeroxed reading materials for the lecture part of the class. These readings will be stored in Rm. 1205. Please do not take them home. You can xerox the readings but immediately return the "originals" to Rm. 1205.

REQUIRED LAB MANUAL: Squires, R. L., 1995, *Laboratory Manual for Fundamentals of Paleontology*: Printed by the CSUN Bookstore. Be sure to bring the lab manual to each lecture/lab.

LECTURE PROJECT: By the beginning of week 2, each person will select a topic from a posted "List of Topics." You will be expected to prepare a report on your topic, and the report **cannot exceed a total of five pages** including text, figures, and references (8 1/2" x11"). It should summarize the most important features of the topic, yet remain concise and precise. See attached "Guidelines for the Geologic Report." **This report (submit two copies) is due Wednesday November 3 at 9:30 am.** On **November 10**, during lab time, students will give a 5-minute oral overview of their topic.

LECTURE EXAMS: There are two 1-hour exams and a cumulative final. These exams will be based on lecture material, text-book readings, and any xeroxed assigned readings. The exams will be approximately 50% mini-essays and 50% objective questions. The final exam has 100 pts. based on the last third of the class and 50 pts. based on a review of all the lecture material. **NO MAKE-UP EXAMS**

LECTURE EXTRA CREDIT: For an extra **15** points, you can visit either the Natural History Museum near USC or the La Brea Tar Pits, and then write a two-page summary of what you saw and how it will help you in this class. For an extra 3 points per talk, you can attend any pre-approved (by me) Department-sponsored guest lecture. You must also write up a one-page summary.

LECTURE POINTS:

1st Midterm	100 pts.
2nd Midterm	100
Final Exam (**cumulative**)	150
Lecture Project	85
Oral presentation	15
Pop quizzes	?
Total (at least)	450 pts.

LAB EXAMS: There are three quizzes and a cumulative lab final. They will be based primarily on the identification of specimens, and to a lesser degree on you providing sketches pertaining to morphology and living position, as well as fair questions dealing with geologic age.

LAB POINTS:

12 lab exercises (each worth 10 pts.)	120 pts.	(-2 pts. per day late)
3 lab exams (each worth 40 pts.)	120	
Lab final (**cumulative**)	100	
Pop quizzes	?	
Total (at least)	340 pts. + any possible extra-credit I.D. of specimens	

NO LATE LABS & NO MAKE-UP EXAMS

GRADING: There will be separate grades for lecture and lab. Each is based on percentage of the total points.

Grading Scale for Lecture & Lab				
	A	90-100%	D	60-69
	B	80-89	F	<60
	C	70-79		

Failure to take the final exam will result in a grade of WU (Withdrawal Unauthorized).
In accordance with the University policy for "Incompletes, " there has to be a compelling and verifiable reason (and the accompanying paperwork) given **well in advance** of the final exam.

NOTE: Please, **NO EATING OR DRINKING (other than water) IN CLASS (Lecture or Lab).**

LECTURE TOPICS, EXAM DATES, AND TEXT-BOOK READINGS

Week #		**Chapters:Pages**
1	Introduction, Preservation	1
2	Biostratigraphy, Paleoecology	10, 8
3	Bacteria, Algae, Land Plants, Palynology, Microfossils	19:437-440, 457-461; 11:194-200, 208-209, 212;17:353-355
4	Microfossils, Sponges, Archaeocyathids	12:220-222
5	Corals, Bryozoans, Brachiopods, **EXAM NO. 1---SEPT. 27**	12:227-229; 13:242-243, 250
6	What is a Species?, Variation, Functional Morphology, Annelids, Trace Fossils, Graptolites	3, 2, 7, 18, 17:346-348
7	Systematics (Taxonomy), Nomenclature, Cladistics	4 + Taxonomy Chap. in Lab Manual
8	Gastropods, Bivalves	15:291-294; 15:303-306
9	Cephalopods, Taphonomy, Evolution	15:313-316
10	Extinction, Arthropods	6;14:264
11	Ediacara & Burgess Shale fossils + Echinoderms (not on next exam); **EXAM NO. 2 ----NOV. 8**	1:15
12	Fishes, Amphibians	1:15; 17
13	Fishes, Amphibians, Early Reptiles, Crocodiles, Pterosaurs, Theropods Birds; **STUDENT REPORTS DUE NOV. 3**	
14	Sauropods, Ornithopods, Marine Reptiles, Protomammals, Mammals	17
15	Mammals	17
16	Mammals/Humans, Review	17
17	**CUMULATIVE FINAL EXAM----Week of Dec. 13th (date and time to be announced)**	

LABORATORY TOPICS AND QUIZ DATES

Before each lab, you will be expected to read the appropriate section(s) in the lab manual that pertain to the lab. There is always the possibility of a "pop quiz" on this material.

Week #

1 Project Report, Geologic Time Scale, Field Equipment, Preservation

2 Preservation, Biostratigraphy, Paleoecology

3 Bacteria, Algae, Land Plants, CSUN Greenhouse Field Trip

4 Microfossils, Sponges, Archaeocyathids

5 Bryozoans & Brachiopods lecture; Corals, Review Specimens

6 **LAB QUIZ No. 1 (Preservation through corals)---SEPT. 29**; Brachiopods

7 Cladistics, Species, Traces, Graptolites

8 Gastropods, Bivalves

9 Bivalves, Cephalopods, Taphonomy

10 Biogeography; Simpson Coefficient; **LAB QUIZ No. 2 (Bryozoa through Taphonomy)---OCT. 27**; Arthropods

11 Arthropods & Ediacara fossils, Echinoderms

12 ***STUDENT TALKS* NOV. 10** **FIELD TRIP (Sat. NOV. 13, all day)**

13 Chordates; Clean & Label Field-Trip Fossils

14 **LAB QUIZ No. 3** (Arthropods, Echinoderms, Bivalves & Mammal Skulls)**---DEC. 1**; Review

15 **LAB FINAL (Cumulative)---DEC. 8 (during regular lab time)**

LECTURE PROJECT: List of Topics

Select a topic and sign your name opposite it. First come, first served. As explained in the syllabus, prepare a **well-written,** five-page report on your topic.

Geologic History of:

Fresh-water Diatoms
Recent Lingulid Brachiopods
Pteropod Gastropods
Molluscan Larval Types
Rudistid Bivalves
Nautiloid *Aturia*
Comatulid ("Swimming") Crinoids
Ancient Cold-Seep Communities
Reptiles from the Petrified Forest, Arizona
Glyptodonts
Lemurs
Giraffes
Manatees
Cope's Law and its Affect on the Fossil Record
"Roemer's Gap" and its Affect on the Fossil Record

DUE DATE FOR REPORT IS WEDNESDAY, NOVEMBER 3 at 9:30 a.m.

No late reports accepted.

Guidelines for the Written Geologic Report

Use a word processor and an ink-jet or laser printer. Use Times font (plain text, 12 point = what was used for this syllabus) or a reasonable fascimile. Use one-inch margins, **double** space the text, double space between paragraphs, and single space the References Cited.

The use of illustrations is recommended but do not waste space. Incorporate each figure into the text. Do not just staple them at the end of the report. Number each figure and give it a caption with the reference source cited [e.g., Figure 1. A late Oligocene baluchithere from Pakistan (from Moore, 1967)]. Also cite each figure in your text, for example: Baluchitheres were giant rhino-like animals (Fig. 1).

When you cite a reference in the text, use one and/or both of the following two styles: Rudistids found on the west coast range in geologic age from Albian to Maastrichtian (Seiders, 1992; Elder, 1994); or According to Seiders (1992) and Elder (1994), rudistids found on the west coast range in geologic age from Albian to Maastrichtian. Do not use footnotes. For the "References Cited" section, use the following styles (as found in any current copy of the Geological Society of America Bulletin):

example for books—Press, F., and Siever, R., 1978, Earth History (second edition): San Francisco, W. H. Freeman and Company, 649 p.

for journals—Sun, S. S., 1980, Cretaceous gastropods in Libya: Royal Society of London Transactions in Science, series A, v. 297, p. 409-445.

for magazines—Armstrong, J. C., 1992, The demise of the dinosaurs: Newsweek, February, 1993, p. 14-17, 21.

for computer CDs—Anonymous, 1997, Sharks and rays: Grolier Multimedia Encyclopedia.

for web sites—Anonymous, 2001, Mosasaurs of California: <http://ucmp1.berkeley.edu>.

Your report (worth a total of 85 points) will be graded on the basis of the following:

1) content (does it cover the subject, is it written in your own words, and is it up-to-date) (worth 45 pts.).
2) grammar and spelling (be sure to use complete sentences) (worth 20 pts.).
3) organization, layout, format, effective use of illustrations, and neatness (worth 10 pts.).
4) proper citing of references in the text (worth 5 pts.).
5) proper reference style in "References Cited" (worth 5 pts.) You should have a minimum of five references, with no more than two taken from the internet.

In short, make the effort to produce a report that will be of high quality. Start early on your research.

Submit two copies by Wednesday, November 3 at 9:30 a.m.

Guidelines for the Oral Presentation

You will have a maximum of five minutes to present an overview of your research. If you go over five minutes, then you lose 1 points for every extra minute. You are strongly encouraged to do a PowerPoint Presentation, or at least use some sort of visual aids.

DO NOT READ YOUR PRESENTATION! There should be an introduction, body, and conclusions to your presentation. The motto for a good oral presentation is: "Tell them what you are going to tell them, tell them, and tell them what you told them."

ORAL OVERVIEWS OF REPORTS: WEDNESDAY, NOVEMBER 10, 1-4 pm

No late oral presenations accepted