

College of San Mateo

Course Outline

- New Course
 Update/No change
 Course Revision (Minor)
 Course Revision (Major)

Date: Dec. 21, 2007

Department: Paln Number: 111

Course Title: Paleontology Laboratory/Field Studies Units: 1

Hours/Week: Lecture: Lab: 4 By Arrangement: 0

Length of Course

- Semester-long
 Short course (Number of weeks 12)
 Open entry/Open exit

Grading

- Letter
 Credit/No Credit
 Grade Option (letter or Credit/No Credit)

1. **Prerequisite** (Attach Enrollment Limitation Validation Form.)

Completion of or concurrent enrollment in Paln 110

2. **Corequisite** (Attach Enrollment Limitation Validation Form.)

3. **Recommended Preparation** (Attach Enrollment Validation Form.)

4. **Catalog Description** (Include prerequisites/corequisites/recommended preparation.)

111 Paleontology Laboratory/Field studies (1) Three lab hours per week plus field trips. Prerequisite: completion of or concurrent enrollment in PALN 110. Optional introductory paleontology laboratory course designed to be taken concurrently with or following PALN 110. Laboratory exercises in dating methods, fossil preservation, rock, fossil and ecosystem identification and interpretation, stratigraphic correlation, natural selection and extinction processes, fossil collection and preparation. Field trips to depositional/ecological environments and fossil sites required. (AA: Area E5a, CSU: Area B1/Area B3, UC: Area 5A*/5B*)

5. **Class Schedule Description** (Include prerequisites/corequisites/recommended preparation.)

Laboratory exercises in dating methods, fossil preservation, rock, fossil and ecosystem identification and interpretation, stratigraphic correlation, natural selection and extinction processes, fossil collection and preparation. Field trips to depositional/ecological environments and fossil sites required. Prerequisite: concurrent enrollment in or completion of PALN 110 with a grade of C or higher. (CSU/UC)

6. **Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

Upon successful completion of the course, the student will be able to:

Demonstrate an understanding of paleontologic concepts by being able to apply these concepts to identify and interpret facets of evolution, earth materials, plate tectonics, fossils or ecosystems

Solve quantitative problems associated with plate tectonic rates and/or dinosaur speed

Interpret graphical representations of speed versus stride and/or growth rates

Evaluate the logic, validity and relevance of information in assessing evidence for past bolide impacts

Draw appropriate conclusions from the application of scientific principles and/or empirical results of plate tectonics or ecosystem interactions

7. **Course Objectives** (Identify specific teaching objectives detailing course content and activities. *For some courses, the course objectives will be the same as the student learning outcomes. If this is the case, please simply indicate this in this section).*

All of the above plus hands-on experience in fossil collection and preparation.

8. **Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, you may attach a sample course syllabus with a timeline.)

nature of science

relative dating

deep time & radiometric dating

sedimentary depositional environments

dating with fossils

evolution

comparative anatomy

simulated dig

taxonomy

dna & island biogeography

ecosystems

fossil preparation

dinosaur speed

exothermic or endothermic dinosaurs

fossil teeth

fossil collecting field trips

9. **Representative Instructional Methods** (Describe instructor-initiated teaching strategies that will assist students in meeting course objectives. Include examples of out-of-class assignments, required reading and writing assignments, and methods for teaching critical thinking skills.) **If hours by arrangement are required by this course, indicate the additional instructional activity which will be provided during this time.**

The following methodologies are appropriate. Individual faculty will use whatever mix of these they find most effective in the presentation of each topic.

Review of paleontologic, geologic or biologic principles lecture with visual aids (transparencies, samples, maps), laboratory exercises, hands-on experience with mineral, rock and fossil samples, required reading of lab manual, required application of key terms, concepts and techniques, and required field trips.

10. **Representative Methods of Evaluation** (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

Instructors have considerable discretion in determining course grades, but the department expects in-class tests to account for at least 80-90% of the final grade. Laboratory assignments and homework typically combine to account for the remaining 10-20% of the grade. Methods of evaluation include written tests with both objective questions (true/false, multiple choice, matching), and application of appropriate methods and concepts applied to fossils, genetic data, shared derived characters, geologic ranges, ecosystems, minerals, rocks, graphic representations, maps and cross-sections.

11. **Representative Text Materials** (With few exceptions, texts need to be current. Include publication dates.)

Gore, Historical Geology Online Laboratory Manual, 4th edition, GPC Print Shop, 2007
or
Poort & Carlson, Historical Geology: Interpretations and Applications, 6th edition, Pearson/Prentice Hall, 2005

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(Signature)

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Submission Date: _____