

Course Syllabus

GEOL 240 – The Dinosaurs

Summer 2015

I. Description

GEOL 240 The Dinosaurs

4 hours

A field course covering the taxonomic relationships, environment, and fossil record of the dinosaurs. Includes extensive training in field methods of vertebrate paleontology and participation in the dinosaur research project.

Prerequisite: GEOL 112 or permission of instructor.

II. Level

(sophomore)

III. Objectives - General education

As a result of a planned education process, the General Education Program will achieve the following student learning outcomes:

1. Expose students to broad areas of knowledge
2. Encourage the improvement and refinement of students' academic skills
3. Foster the strengthening and broadening of students' spiritual lives
4. Encourage the attitudes and practices of healthful living

IV. Text

Textbook:

The Evolution and Extinction of the Dinosaurs, Fastovsky and Weishampel, 2nd rev ed, Cambridge University Press, 2005.

ISBN 0-521-81172-4.

The textbook is **required**. You need to obtain a copy **before** coming to the site. A most convenient (and possibly the least expensive) way to obtain your copy is to order it on-line from a company such as **<http://www.amazon.com/>**.

Field Notebook:

The **Field Notebook** is required of all students and can be obtained on-site from the Director of the Dinosaur Project. The cost is \$5.00.

The **Field Notebook** will be used to record written information concerning the work. After the summer's work all **Field Note Books** will be collected by the Director, photocopied, and the book returned to its owner at a later date.

V. Outline

See General Description below

VI. Instructor

Arthur Chadwick, Ph.D, (geology, sedimentology, taphonomy)

chadwick@swau.edu

VII. Structure

General Description

The summer course is planned to acquaint you first hand with the biology and taphonomy of dinosaurs. It is also designed to enable you to pursue interests in the discovery of things new to science in paleontology. You may earn 4 semester hours of science lab credit in a course designed for non-science majors. Through lectures in the classroom and in the experience in the field, you will become acquainted with the following areas:

- systematics and biology of dinosaurs;
- dinosaur anatomy and their place in the fossil record;
- the general nature and science of taphonomy;
- technologies of data acquisition and analysis;
- the approaches and processes employed in the excavation of vertebrate remains;
- the techniques for identifying the fossils; and
- the procedures for preserving the remains after excavation.

Evening lectures will cover the basics of vertebrate anatomy, the systematics and anatomy of the dinosaurs and will consider philosophical and scientific issues concerning origins. The scope of the presentations will range from the process of fossilization and taphonomy to the specific differences in anatomy and distribution of the dinosauria. We will be giving consideration to the nature of scientific data and the significance of the research being carried out on the site. The faculty will also present talks on other related research projects they are involved in. You will have a new appreciation for the issues surrounding the history of the earth revealed through the eyes of geology.

Field work will give you experience in the excavation and preservation of the fossil remains as well as practice in careful data recording. You will be part of an on-going basic science research project.

VIII. Grading

Grades are determined from three broad areas:

Field Notebook

- quality of material recorded
- timeliness of records
- counts 20% toward final grade

Participation

- quality of the work performed
- quantity of the lab experience
- attitude in adhering to research experience
- cooperation toward camp life
- contribution to the total experience
- lecture participation
- counts 50% toward final grade

Final Exam

- based upon the material covered in the assigned reading and the lectures
- include lessons learned in the experiential field work
- essay format
- counts 30% toward final grade

The grade (and the undergraduate credit) is based upon the full four-weeks research project experience. Occasionally, a student may, because of unavoidable circumstances, be unable to participate the full time. It is possible, with prior agreement, to fulfill some of the field experience by working in the bone preparation laboratory on the Southwestern campus during subsequent months. Arrangements also need to be made for any missing lectures or course material. The grade received at the end of the summer session would be an Incomplete which needs to be resolved nine weeks after the end of the summer semester—typically around the middle of October. The Incomplete would be changed to the final grade earned when all the requirements of the course have been met.

Final grades are then computed from the weighted average of percentages earned according to:

91% – 100% A
87% – 90% A-
84% – 86% B+
81% – 84% B
77% – 80% B-
74% – 76% C+
71% – 73% C
67% – 70% C-
64% – 66% D+
61% – 63% D
57% – 60% D-
0% – 60% F