GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE
ES 2070--MASS EXTINCTIONS AND DINOSAURS
COURSE OUTLINE
WINTER SEMESTER- 2010

Lecture Section A3 & TC W 6:00 - 8:50 pm Room F309

INSTRUCTOR: **Dr. Desh Mittra**
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TRANSFER CREDIT:

U. of Alberta	EAS 207	3 credits
U. of Calgary	GLGY 307	3 credits
U. of Lethbridge	GEOL 2XXX	3 credits

COURSE OBJECTIVES: The course has been designed to discuss and describe the progression of life through time, with emphasis on important radiations and mass extinctions of life, and the theories on why they occur. Evolution, radiation, morphology and life habits of dinosaurs are considered in detail. The evidence for asteroid impacts in the geologic record, their frequency and effect on history of organisms through time. Origin and evolution of humans and their impact on the biosphere.

Text Book : *Introduction to the Study of Dinosaurs*, by Anthony J. Martin, Blackwell Science.

Reference Books: *Dinosaurs, The textbook,* by Spencer G. Lucas
Dinosaur, Systematic Approaches and perspectives, Edited by Ken Carpenter and Phil Currie
The Handy Dinosaur Answer Book by Thomas E. Svarney

ES 2070 - Lecture Schedule (Tentative).

1) **Jan 06**: Introduction to course. Geological Column. Principles of Stratigraphy. History of Geology. Definition of Dinosaur. (Ch.1)

2) **Jan 13**: **Overview of Scientific methods**: Facts, datum, qualitative and quantitative methods, hypothesis, theory and opinions. Field observations. **History of Dinosaur Studies**. Early recognition of dinosaurs. European discoverers, North American Studies. Study of dinosaurs in the 20th century. (Ch. 2, 3)

3) **Jan 20**: **Paleontology and Geology as Science:** Maps-geologic and topographic, Basic principles of Geology, Relative and absolute age. Plate tectonics-convergent, divergent and transform boundaries, hot spots, folds and faults. (Ch. 4)

4) **Jan 27**: **Dinosaur Anatomy and classification**; Dinosaur Anatomy Related to classification: Old and New. **Dinosaur Evolution:** Basic concepts, Evolutionary Origin of Dinosaurs. (Ch. 5, 6)

5) **Feb. 3:** **Dinosaur Taphonomy**: Pre-burial, Accumulation, Burial, and Post-burial. **Dinosaur Physiology:** Reproduction, Sex and eggs and their shapes, embryos. Dinosaur growth and Thermoregulations, Feeding, Nests and other related things (Ch. 7, 8)

6) **Feb 10**: **Mid-Term Exam 1;**
The Theropods Characteristics of Theropods, species of Theropoda, Evolutionary history of Theropoda, Theropods as living Animals. (Ch. 9);

7) **Feb. 17**: **The Sauropodomorpha**, Definition and characteristics, species. History of Sauropodomorpha, Reproduction, Growth, Locomotion, Feeding, Social life, Health and extinction. (Ch.10)

8) **Feb. 24**: **The Ornithopoda**: Definition and characteristics, species, reproduction, growth, Locomotion, Feeding, social life, Health and extinction. (Ch. 11)

9) **March 3:** **Thyreophora**: Definition and characteristics of Thyreophora, Species. Clade Stegosauria. Reproduction and growth, Locomotion, Feeding, Social Life and Health. (Ch. 12)

10) **March 10:** **No Classes (Arctic Winter Games)**

11) **March 17:** **Mid-Term Exam 2;**
Marginocephalia: Species of Marginocephalia, Evolutionary History, As living animals. (Ch.13)

12) **March 24**: **Dinosaur Ichnology**: Tracks, Different information from Tracks, Nests, Toothmarks, Gastroliths, Coprolites, Dinosaur trace Fossils(Ch. 14)

13) **March 31**: **Birds as Modern Dinosaurs**: Aves, Archaeopteryx, and bird lineages, Bird as living animals (Ch. 15)

14) **April 07**: **Dinosaurs Extinctions**. K-T Boundary, Causes of Dinosaur Extinctions. Quaternary/Holocene Mass extinction. (Ch. 16)

15) **April 14**: **Review**

Date for the FINAL exam will be announced in the class.

Note: **Topic for the term paper will be given with consultation and should be submitted on the last day of our lecture class.**

MARKS DISTRIBUTION

Mid-Term 1	20%
Mid-Term 2	20%
Term paper	20%
FINAL	40%