

Introduction:

Acquire theoretical knowledge about prehistoric life form of fishes, amphibians, reptiles, birds and mammals at different stages of Geological Time Scale. Compare different osteology of vertebrate groups. Evaluate the palaeocology and palaeoenvironment associated with different faunal elements.

Course Objectives

To discuss the history and evolution of the vertebrates.

The phylogenetic relationships and evolutionary patterns of the major groups.

Course Contents:

Introduction to vertebrate Palaeontology and vertebrate origins. Fishes: Early Fishes and Acquiring Jaws; Post-Devonian Fish Evolution: Sharks, rays, and bony fishes, Sarcopterygii and the oldest tetrapods (fishes with legs). Carboniferous Tetrapods and amphibians. Reptiles: Origin of Amniotes and early Amniotes, Synapsids of the Permian Basal Archosaurs and Origin of Crocodiles. Birds and Feathered Dinosaurs. Dawn of the Age of Mammals; Early Cenozoic Mammals.

Teaching-Learning Strategies

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

Assignments

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

Assessments and Examination

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks

Books recommended

1. Prothero, D.R., 2004. Bringing Fossils to life: An Introduction to Palaeontology (2nded.). McGraw Hill, New York.
2. Prasad, K. N., 2001. An Introduction to the Mammalian Fauna of the Siwalik System. Prasad Publication, New Delhi, India.
3. Romer, A.S., 1964. Vertebrate Palaeontology. The University of Chicago Press, Chicago and London.
4. Young, J. Z., 1981. The life of vertebrate (7thed.). Oxford University Press, New York, USA.
5. Colbert, E. H., 1980. Evolution of vertebrates, John Wilay and Sons. Inc. New York.
6. COLBERT, E. H., 1935. Siwalik mammals in the American Museum of Natural History. *Trans. Amer. Phil. Soc., n.s.*, **26**: 1-401.
7. PILGRIM, G. E., 1939. The fossil Bovidae of India. *Pal. Ind., N.S.*, **26**(1): 1-356.
8. Classification of mammals above the species level. Columbia University Press, New York. McKenna, M. C. & Bell, S. K. 1997.
9. Young, D., 1992. The Discovery of Evolution, Cambridge University Press, Cambridge.
10. Thomson, J.J., 1997. Functional Morphology in vertebrate Palaeontology, Cambridge University Press, Cambridge. 1997.
11. Smith, 1994. Systematics and the fossil record: documenting evolutionary pathways. Black well scientific, Oxford.
12. The meaning of fossils. Episodes in the history of palaeontology. Second Edition. University of Chicago Press, Chicago, Rudwick. 1985.

UZO-592 Vertebrate Palaeontology (Lab.)

Cr. (1)

Introduction

Observe the skeletal remains of organisms and make successful biological inferences about the soft-bodied organism that produced them. The laboratory component focuses on comparative vertebrate osteology and fossil representation of major groups.

Course Objectives

Identify taxa representing the major lineages of life through study of their anatomy and diversity; provide an opportunity to explore and express your ideas on evolutionary patterns and processes based on your current interpretation and understanding of data from the fossil record. Collect the fossils from field.

Course Contents:

Laboratory will include practical experience in excavation of fossil vertebrates.

An introduction to the techniques and methods of data collection in vertebrate paleontology. Study and identification of Hipparion/Equus molars; study and identification of bovid molars; study and identification of cervid molars; study and identification of giraffid molars; study and identification of tragulid molars; study and identification of suid molars; study and identification of rhinoceros molars; study and identification of proboscidean molar. A general survey of the fossil vertebrates in various museums of Pakistan.

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