



जम्मू केन्द्रीय विश्वविद्यालय
Central University of Jammu

राया-सुचानी (बगला), जिला: सांबा-181143, जम्मू (जम्मू और कश्मीर), भारत
Rahya-Suchani (Bagla), District- Samba, 181143, Jammu (Jammu and Kashmir), India

Course Title: Chordate Biology

Credit: 4 (L-4, T-0, P-0)

Course code:

Contact Hrs/Week: 4 Hrs

Course Outcomes

A comprehensive knowledge of chordate biology will equip students with the understanding and skills necessary for to identification of diverse chordate fauna.

Course Learning Outcomes (CLO): The students will be able to:

1. Identify and describe the major groups of living chordates based on anatomical features and comprehend the evolutionary relationships and ecological roles of chordate species.
2. Understand the origin and evolutionary relationship among different groups of chordates.
3. Recognize the anatomical and physiological adaptations of chordates in relation to their environment.
4. Able to learn about the diversity of chordate life forms and their evolutionary significance.
5. Able to understand the different processes developed in varied life forms of chordates.

Unit I

Origin of chordates - Interrelationship of Hemichordata, Urochordata, Cephalochordate and their relationship with other Deuterostomes. Evolutionary significance of notochord and endostyle

Unit II

Origin evolution and general characters of Agnatha with respect to Ostracoderms and Cyclostomes, An account of early Gnathostomes with reference to their origin. Origin and evolution of Elasmobranchii, Holocephali, Dipnoi and Crossoptergii. Origin, evolution and adaptive radiation of bony fishes. Evolution of air/swim bladders

Unit III

Origin, evolution and adaptive radiation of amphibians. Conquest of land, origin of Seymouria and Cotylosauria. Origin, evolution and adaptive radiation of Reptilia. Origin of Dinosaurs. Living reptiles with respect to Rhyncocephalia, Chelonia, Squamata and Crocodilia. evolution of skull, heart, visceral arches and sensory organs in reptiles, Evolution of cleidoic egg with its structural and physiological adaptations. Evolution of amniotic sac.

Unit IV

Origin of Aves. Connecting link between reptiles and birds with its general characters of ancestors Origin and evolution of birds. Origin of flight, flight mechanism & flight adaptation in birds. modifications of beak, feet and palate in birds. Adaptive radiation in birds.

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Unit V

Origin of Mammals. Origin, evolution and adaptive radiation of mammals -origin and evolution of Prototheria, Metatherian, Eutheria

Suggested Readings:

1. Weichert C.K and William Presch (1970). Elements of Chordate Anatomy, Tata McGraw Hills
2. Hilderbrand, M and Gaslow G.E. Analysis of Vertebrate Structure, John Wiley and Sons.
3. Walter, H.E. and Sayles, L.P; Biology of Vertebrates, Khosla Publishing House.
4. Darlington P.J. (1966). The Geographical Distribution of Animals, R.E. Krieger Pub. Co.
5. Hall B.K. and Hallgrímsson B. (2008). Strickberger's Evolution. IV Edition. Jones and Bartlett Publishers Inc.
6. Young, J. Z. (2004). The Life of Vertebrates. III Edition, Oxford university press.
7. Parker T.J. and Haswell W.A. (1972). Textbook of Zoology Vertebrates. VII Edition, Volume II
8. Pough H. (2018). Vertebrate life X Edition, Pearson International.

Course Title: Chordate Biology Lab.

Credit: 2 (L-0, T-0, P-4)

Course code:

Contact Hrs/Week: 4 Hrs

Lab component

1. Study of types of body scales in pisces, reptiles, and mammals
2. Study of axial skeleton & the appendicular skeleton of chordates
3. Study of extinct life forms of amphibians and reptiles
4. Study of Integumentary derivatives in vertebrates
5. Study of head gears in chordates
6. Field visit to understand the diverse life forms exist around
7. Visit to museums, zoos and nature settings for exploring chordates