

CORE COURSE III (CC) - VERTEBRATE BIOLOGY

UNIT 1:

Geological time scale- progression of vertebrates through time, chordate features and theories on the origin and classification of chordates upto classes.

UNIT 2:

Characteristic features of ancestral vertebrates - evolution of jawless and primitive vertebrates. Evolution and adaptive radiation of elasmobranchs and bony fishes.

UNIT 3:

Origin, distribution and adaptive radiation of amphibia.

Gametogenesis, fertilization, cleavage, development upto gastrulation in amphioxus with special reference to marine vertebrates-embryology of fish, bird and mammal.

Nuclear transplantation –embryo transplantation techniques, test tube babies, artificial insemination, infertility, Rh factor.

UNIT 4:

Origin of reptiles- adaptive radiation of contemporary reptiles, amphibian and reptilian features of Seymouria, mammal like reptiles, rise and fall of dinosaurs including Mesozoic marine reptiles. Importance of marine birds.

UNIT 5:

General characters of mammals-classification and evolution of monotremes, marsupials and placentals - Aquatic mammals- classification, adaptations and evolution of cetacea and Sirenia.

Aquatic adaptations of respiratory and circulatory mechanisms- comparative anatomy of skin derivatives.

TEXT BOOKS:

1. Balinsky, B.I., 1970 An introduction to development biology. Philadelphia and London.
2. Berril, N.J., 1971. Developmental Biology, McGraw Hill Book Co., New York.
3. Colbert, E.H., 1970. Evolution of the Vertebrates.
4. Dodson, E.O.1968. Evolution process and products. Eastwest press, New Delhi.
5. Dohzhansky, T., F.T.Ayala, G.L.Stebeinns, and J.Q.Valentini, 1973 Evolution , Surjeet publication ,New Delhi.
6. Goodrich, E.S., 1958, studies on the structure and development of vertebrates vols. I and II. Dover publications inc., New york.
7. Lull, R.S., 1984. Organic Evolution. Seema Publication, New Delhi.
8. Robert, T.Orr, 1976. Vertebrate Biology. W.B.Saunders Company, Philadelphia.
9. Romer, A.S., 1945. Vertebrate Palaeontology. University of Chicago press, Chicago.
10. Verma, P.S., V.K.Agarwal and B.S. Tygi, 1981. Chordate Embryology. S.Chand and Co., New Delhi.
11. Young, J.A., 1981. The life of vertebrates. Oxford University Press, New york.