Semester II

Name of the Programme: **M.Sc. Zoology**

Course Code: ZOO-506 **Title of the Course:** Anatomy of Vertebrates

Number of Credits: 03

Effective from AY: 2023-24

Pre-requisites for the Course:	Basic knowledge on vertebrate anatomy, taxonomy and systematics is a prerequisite for this course.	
Course Objectives:	1. To provide knowledge about the general principles of vertebrate classification and phylogeny, and characteristics of the major chordate taxa. 2. To study the anatomical and physiological principles by studying form and function relationships from an evolutionary perspective. 3. To incite curiosity among learners about the complex ecological interactions of the organisms 4. To discuss how the environmental conditions modulate these interactions through adaptive mechanisms. 5. To indicate the role of scientific methods in advancing our knowledge of vertebrate anatomy and physiology.	
Content:	**Module 1** Detailed comparative analysis of vertebrate brain, spinal cord and sense organs. Basic plan of vertebra construction. Axial and Appendicular skeleton of vertebrates and their modification. Classification of vertebrate musculature. Axial and appendicular musculature of vertebrates. **Module 2** Digestive system of vertebrates with special analysis of herbivore, carnivore and omnivore stomach. Excretory system of Tetrapods, Mammalian kidney in detail, specialized excretory structures such as rectal glands (elasmobranchs) and salt glands (reptiles and Birds). Testes and Vasadeferens in anaminiotes and amniotes. Ovary and oviduct of anaminiotes and amniotes. **Module 3** Respiratory structure of fishes, Types of Tetrapod lungs	15 hours 5 hours 5 hours 5 hours

	(Alveolar, Faveolar, Parabronchial and Broncho- alveolar). Circulatory systems of Vertebrates, Vertebrate portal systems, Lymphatic system in Tetrapods.	8 hours 7 hours
Pedagogy:	Lectures/ tutorials/ online teaching mode/self-study	
References/ Readings:	1. K. Kardong, Vertebrates: Comparative Anatomy, Function and Evolution, McGraw-Hill Companies, 2011. 2. C.G. Kent, and R. Carr, Comparative Anatomy of Vertebrates, McGraw-Hill Companies, 2000 3. K.F. Liem, and W. Franklin, Functional Anatomy of the Vertebrates: an Evolutionary Perspective, CA: Harcourt College Publishers, 2001. 4. C. Moyces, and P. Schulte, Principles of Animal Physiology, Pearson International Edition, 2013. 5. C.L. Prosser, Comparative Animal Physiology, Part A, Environmental and Metabolic Animal Physiology, Oxford: John Wiley & Sons Publication, 1991. 6. Schmidt-Rhaesa, The Evolution of Organ Systems, Oxford University Press, 2007. 7. P.C. Withers, Comparative Animal Physiology, Fort Worth: Saunders College Publication, 1992. 8. R.G. Wolff, Functional Chordate Anatomy, Amazon Publication, 1994.	
Course Outcomes:	The learner will 1. Articulate the basic concepts associated with each system of the body. 2. Identify structures in the body systems which perform the functions according to the habits or habitats of the animals. 3. Compare the anatomy of different taxa based on evolutionary patterns. 4. Integrate the role of evolution in anatomy of non-chordates.	

(Back to top)