Semester	**VI**
Course	**Major-2**
Paper Title	**ANIMAL DIVERSITY AND EUKARYOTIC MOLECULAR BIOLOGY**
Paper Code	
No of Credits	4 (Theory: 4)
Theory /Practical /Composite	Full Theory
Minimum No. of preparatory hours per week a student has to devote	4
Number of Modules	2
Syllabus	**Module A: (35 Marks; 2 classes / week)** **UNIT I: The Animal Kingdom:** General overview of major non- chordate phyla and Chordata. **UNIT II: Animal Diversity**; Zoogeographical realms and animal distribution; Territoriality in animals. **UNIT III: Study of Selected Vertebrate Systems:** Vertebrate stomach and digestion in ruminants; heart and aortic arches in vertebrates; respiratory organs and modes of respiration in vertebrates; modes of excretion and osmoregulation in vertebrates; Snake venom and venom apparatus; Volant adaptations and migration in Aves. **Module B: (35 Marks; 2 classes / week)** **UNIT IV: Eukaryotic replication:** Differences from prokaryotic replication; DNA polymerases: types; PCNA; ARS; control and regulation; end replication problem; telomeres and telomerase; **UNIT V: Transcription in eukaryotes:** Eukaryotic RNA polymerases, transcription factors, promoters, enhancers and silencers, mechanism of transcription initiation, formation of preinitiation complex, promoter clearance and elongation, enhancers and silencers. **UNIT VI: Translation in eukaryotes:** mechanism of translation initiation, elongation and termination, regulation of translation.
Learning Outcomes	1. To provide an overview of animal diversity with respect to Chordata and non-chordate phyla. 2.To familiarize the students with diverse aspects of animal biology, enabling them to develop an understanding of the animal kingdom. 3. To acquire information about the comparative anatomy of vertebrate phyla and learn how different systems function in their complexity. 4. To analyze the molecular mechanisms of eukaryotic DNA replication. 5. To evaluate the process and regulation of eukaryotic transcription. 6. To interpret the molecular events in eukaryotic translation and its regulation.

Reading / Reference List	**Text/References** **Module A** 1) J.Z. Young. The Life of Vertebrates. 2) E.E. Ruppert, R.S. Fox, R.B. Barnes. Invertebrate Zoology. 3) K.V. Kardong. Vertebrates – Comparative Anatomy, Function, Evolution. 4) K. Schmidt-Nielsen. Animal Physiology: Adaptation and Environment. **Module B** 1) James D. Watson. Molecular Biology of the Gene. 2) Robert. F. Weaver. Molecular Biology.	
Evaluation	**Theory (100)** • CIA- 20 marks • Assignment – 05 marks • Attendance – 05 marks • Semester Exam- 70 marks	
Paper Structure for Theory Semester Exam	**Module A (35 marks)** Any four out of five questions: Each of 2 marks Any three out of four questions: Each of 9 marks with subparts [No sub-part will be less than 2 marks or more than 6 marks] **Module B (35 Marks)** Any 7 out of 9 questions; each of 5 marks, with subparts [No sub-part will be less than 1 mark or more than 4 marks]	