

**Theory****Animal diversity**

Animal diversity in different ecosystems, desert animals, polar animals, forest dwelling animals, grassland and savannah animals, high altitudes animals, freshwater animals, shore animals, deep sea animals, animals that live around hydrothermal vents.

Structural diversity and adaptations to different modes of existence in the different phyla of the animal kingdom.

The hierarchical organization of animal diversity, Complexity and body size, Animal body plan, Animal Symmetry,

Major sub divisions of the animal kingdom, Phylogenetic relationship of all major phyla. Modern classification of animals including minor phyla.

**Practicals:**

Study of museum specimens with their notes on adaptive characteristics, ecology and habitats.

## **Books Recommended:**

1. Bailey, J.A., 1986. Principles of Wildlife Management, John Wiley.
2. Gaston, G. and J. Spicer. 2007. Biodiversity. Blackwell Publishing & Co. London, UK.
3. Grimmett, R. Inskipp, C. and Inskipp, T.2001, Birds of the Indian Sub-Continent. Helm.
4. Grimmett, R. Roberts, T. J and Inskipp, T. 2008. Birds of Pakistan. Helm Field Guide.
5. Hickman, Roberts, and Larsen, 2003. Animal Diversity (3<sup>rd</sup> Edition).McGraw Hill, New York.
6. Hickman, Roberts, and Larsen, 2004. Integrated principles of Zoology (12<sup>th</sup> Edition).McGraw Hill, New York.
7. Jordan, E. L. and Verma, P. S. 2011.Invertebrate Zoology, S. Chand and Company.
8. M . S. Khan. 2006. Amphibians and Reptiles of Pakistan. Krieger Publishing Company, Florida USA.
9. M. M. Shafique, 2005. Wildlife Acts and Rules of Pakistan. PFI, Peshawar.
10. Miller and Harly, 2007. Zoology (7<sup>th</sup> Edition). McGraw Hill, New York.
11. Mirza . Z. B. 1998. Illustrated handbook of Animal Biodiversity of Pakistan. Printopak.
12. Mitsch, W. J. and Gosselink, J. G. 2007. Wetlands 4<sup>th</sup> ed. John Wiley & Sons, Inc.
13. Odum, E.P., 1994. Fundamentals of Ecology, W.B. Saunders.
14. Pough, F. H., Janis, C. M. and Heiser, J. B. 2006. Vertebrate Life, 6<sup>th</sup> Ed. Pearson Prentice Hall.
15. Prasad, S. N. and Kashyap, V. 2011.A textbook of Vertebrate Zoology, New Age International Publishers.
16. Punjab Wildlife Act 1974. Government of the Punjab.
17. Roberts, T. J. 1991. Birds of Pakistan. Vol. I Oxford
18. Roberts, T. J. 1992. Birds of Pakistan. Vol. II. Oxford
19. Roberts, T. J. 1997. Mammals of Pakistan. Vol. II. Oxford
20. Roberts, T. J. 2005. Field Guide to the large and Medium-sized Mammals of Pakistan. Oxford
21. Roberts, T. J. 2005. Field Guide to the small Mammals of Pakistan. Oxford
22. Robinson, W.L. and Bolen, E.G., 1984. Wildlife Ecology and Management. McMillan, Cambridge.
23. S. S. Ali, 1999. Zoogeography, Paleontology and Wildlife Management, Naseem Book Depot, Hyderabad.
24. Singh, S. K. 2005. Text Book of Wildlife Management. IBDC
25. Smith, R. L. 1980. Ecology and field biology, Harper and Row.