

  
**MANGALORE UNIVERSITY**  
**DEPARTMENT OF BIOSCIENCES**  
**M.Sc. ENVIRONMENTAL SCIENCE**  
**ESH401 ECOLOGY AND BIODIVERSITY**

**Course Outcomes:**

- CO1 Explain the concept of ecosystem.
- CO2 Understand in detail population and community ecology.
- CO3 Get the knowledge of biodiversity and bioresources.
- CO4 Describe the causes for the reduction of species.

**UNIT I (13 hours)**

Concepts of ecosystem: History, definition and characters, biotic and abiotic components of ecosystem. Energy flow, energetics, ecological efficiency, trophic relationships, food webs, productivity and carrying capacity.

**UNIT II (13 hours)**

Population Ecology: Growth, mortality, natality, population fluctuations, population interactions, host-parasite interaction. Population characters and demography. Community ecology: Community structure, characters, types of communities - terrestrial, forest, grassland, dry land, deserts, wetland and aquatic - lakes, rivers, oceans.

**UNIT III (13 hours)**

Basics of biodiversity: Patterns of living organisms – classification and evolution; characterizing species, basics of taxonomic characterization, magnitude and distribution of biodiversity, speciation, ecology of extinction.

**UNIT IV (13 hours)**

Biodiversity and Bioresources: Types of Biodiversity - species diversity, ecosystem diversity, genetic diversity; biodiversity and ecology, Bioresources - terrestrial, aquatic, agricultural and forest resources.

**References:**

1. Clarke, G.L., 1974. Elements of Ecology, John Wiley & Sons, New York.
2. Brock, T.D. & Madigan, M.T., 1986. Biology of microorganisms; Prentice Hall, New Jersey.
3. Dadhick, L.K., 2002. Biodiversity. Strategies for Conservation. APH Publishers, New Delhi.
4. Agarwal, S.K., 2002. Biodiversity and Environment, APH Publishers, New Delhi.
5. Nagore, A.P., 2000. Biological Diversity and International Environment Law.
6. George, A., 2000. The Ecology of sea shores. CRC Press.
7. Mukerji, K.G., 1997. Red Algae, Structure, Ultrastructure and Reproduction.
8. Ashuthosh Gautham, Aquatic Environment.
9. Keddy, P.K., 2000. Wetland Ecology, Cambridge University Press.
10. Chatrath, K.J.S., Wetlands of India.
11. Mahajan, S.E., 1999. Industrial Ecology. Lewis Publishers.

12. Ambasht, R.S., 2002. Modern Trends in Ecology and Environment.
13. Lambers, H., 2002. Plant Physiological Ecology.
14. Arjun Prasad Nagore, 1996. Biological Diversity and International Environmental Law
15. Odum, E.P., 1971. Fundamentals of ecology.
16. Barbour M.D., 1980. Terrestrial Plant Ecology. The Benjamin Cummings Publication Co., California.
17. Furley, P.A. Newey , W.W., Kirby R.P. and Hoston, J Nc. G., 1983. Geography of the Biosphere - An Introduction to the Nature, Distribution and Evolution of the World's Life Zones.

