

CURRICULUM PLAN (Aug. -Dec., 2025)

Dr. MAYANGLAMBAM ROJINA DEVI

Subject- **Concepts of Ecology (DSC 3; Theory)**

Class- **B. Sc. (Hons.) Zoology Sem. I**

Contents	Allocation of lectures	Month-wise schedule to be followed	Tutorial/ Assignments / Presentations
Unit I: Introduction to Ecology (03 Hours) Autecology and Synecology, Laws of limiting factors, Study of physical factors: Temperature and Light	3 lectures	August-September	- Overall introduction to this paper - PPT with relevant pictures and videos
Unit II: Population (07 Hours) Unitary and Modular populations; Unique and group attributes of population: density, natality, mortality, life tables, fecundity tables, survivorship curves, age ratio, sex ratio, dispersal and dispersion; Exponential and logistic growth, equations and patterns, r and k strategies; Intraspecific population regulation: density-dependent and independent factors.	7 lectures	September-October	2 minutes recap of previous class - PPT with relevant pictures
Unit III: Species Interactions (06 Hours) Types of species interactions, Interspecific competition: Lotka-Volterra model of competition, Gause's Principle with laboratory and field examples, Niche concept; Predation: Lotka-Volterra equations, Functional and numerical responses, predator defence mechanisms, Resource partitioning	6 lectures	October	- Discussion through PPT - Surprise quiz - Distribution of assignments
Unit IV: Community (05 Hours) Community characteristics: species richness, dominance, diversity, abundance, guilds, ecotone and edge effect; Ecological succession with examples and types	5 lectures	November	- Lecture - Class test
Unit V: Ecosystem (6 Hours) Types of Ecosystems: Terrestrial ecosystem, vertical stratification in tropical forest; Food chain: detritus and grazing food chains, linear and Y-shaped food chains, food web; Energy flow through the ecosystem; Ecological	6 lectures	November	2 minutes recap of previous class

pyramids and Ecological efficiencies; Biogeochemical cycle- nitrogen cycle.			• PPT with relevant pictures
Unit VI: Applied Ecology (03 Hours) Ecology in wildlife conservation and management, Protected areas: National Parks, Biosphere reserves and Sanctuaries; Restoration ecology, Principles of Environmental impact assessment	3 lectures	December	• 2 minutes recap on previous class • Lecture • REVISION

Subject- **Concepts of Ecology (DSC 3; Practical)**

Class- **B. Sc. (H) Zoology Sem I**

Shared with- **Dr. Priyanka Dahiya**

Date	Practical
07/08/2025	• Study of an aquatic ecosystem: Phytoplankton and zooplankton. • Measurement of temperature, turbidity/penetration of light, determination of pH
14/08/2025	Determination of Dissolved oxygen content (Winkler's method) from different water samples
21/08/2025	Determination of Free carbon dioxide and alkalinity from different water samples
28/08/2025	Study of life tables and plotting of survivorship curves of different types from hypothetical/ real data
11/09/2025	Determination of Chemical oxygen demand from different water samples
18/09/2025	Determination of population density in a natural or a hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index
25/09/2025	Study of ten endemic animals of India with slides/pictures/videos.
09/10/2024	A visit to a National Park/Biodiversity Park/Wildlife Sanctuary
November	REVISION and MOCK PRACTICAL TEST