

Semester:	04		
Course Code:	ZOOL 22732		
Course Name:	Terrestrial Ecology		
Credit Value:	02		
Status:	Compulsory		
Pre-requisite:	ZOOL 12703		
Co-requisite:	ZOOL 22752		
Hourly Breakdown:	Theory	Practical	Independent Learning
	30	-	70

Intended Learning Outcomes:

After completion of this course unit, the student will be able to:

1. describe the structure and functioning of an ecosystem,
2. explain the characteristics of an ecological community,
3. discuss the impacts of dominant, keystone and foundation species on community structure,
4. calculate and interpret diversity indices and assess the variability of ecological communities,
5. explain the characteristics of populations including growth patterns, life history strategies and regulation of population size,
6. explain the global wind patterns, climatic zones and their relationship with the distribution of terrestrial biomes,
7. explain the formation and characteristics of soil, and
8. discuss the natural and anthropogenic impacts on terrestrial ecosystems.

Course Content:

Brief history of ecology, and introduction to Terrestrial ecology, Overview of structure and functioning of an ecosystem, Formation of soil, Properties of soil as a microhabitat, Energy flow and productivity, Trophic structure, and limits on food chain length, Bottom-up and top-down control of food chains, Carbon inputs, decomposition and carbon budget in an ecosystem, Biogeochemical cycling and retention, Characteristics of a community, Habitat, niche and multidimensional niche theory, Analysis of community structure using diversity indices, Characteristics of a population, Mechanisms of density independent and density dependent population regulation, Population growth patterns: exponential, geometric, and logistic growth, Life tables and survivorship curves, Population life history strategies including r-selection and K-selection.

Characteristics of tropical and temperate zones, Global wind cells, earth's rotation and global wind patterns, Global climatic zones, Classification of global climate; Heat zone classification, Köppen classification, and Thornthwaite classification, Factors affecting climate, Climate change; evidences, Greenhouse effect, ozone depletion, global warming solution, Relationship between global climatic zones and major terrestrial biomes, Soil fauna, Natural and anthropogenic impacts on terrestrial ecosystems.

Teaching /Learning Methods:

A combination of lectures, computer based learning, self-studies, assignments and small group discussions.

Assessment Strategy:

Continuous assessment and end of semester examination. Percentage given for each sub-component indicates the percent contribution to the final marks.

Continuous Assessment 30 %		Final Assessment 70 %		
Details:		Theory	Practical	Other
Quizzes	10 %	70 %	-	-
Assignments	20 %			

Recommended Readings:

1. Agren, G. I. & F. O. Anderson (2012). Terrestrial Ecosystem Ecology Principles and Applications. Cambridge University Press.
2. Chapin III, F. S., P. A. Matson & M. Vitousek (2011). Principles of Terrestrial Ecosystem Ecology, latest edition, Springer (eBOOK).
3. Raven, P. H. & G. B. Johnson (2010). Biology. 8th Edition. Tata McGraw-Hill Edition or the latest.
4. Reece, J. B., L. A. Urry, M. L. Cain, S. A. Wasserman, P. V. Minorsky & R. B. Jackson (2011). Biology - Campbell, 9th Edition. Pearson Education Inc. or the latest.