

SEMESTER I & II
LSM2251 ECOLOGY AND ENVIRONMENT

Prerequisite: GCE 'A' Level or H2 Biology or equivalent, or LSM1301 or LSM1301X

Workload: 26 lecture hours + 6 tutorial hours + 18 practical hours including one Saturday fieldtrip

This module introduces students to the science of ecology and its role in understanding environmental processes. It covers both the major concepts and their real-world applications. Topics will include models in ecology, organisms in their environment, evolution and extinction, life history strategies, population biology, ecological interactions, community ecology, ecological energetics, nutrient cycling, landscape ecology.

S/N	Topics	Lecture hours (26 hours)
1.	Course overview. What is Ecology? Why is it relevant?	2
2.	The physical environment; aquatic vs terrestrial environments; physical variables; endotherms and ectotherms; water relations in plants and animals.	4
3.	Genetics and ecology; evolution and extinction.	2
4.	Population ecology; distributions and abundance; population dynamics; population growth – models and reality; life history strategies.	4
5.	Ecological interactions: intra- and inter-specific competition; niches; predation; herbivory; parasitism and disease; mutualisms.	4
6.	Community ecology; assemblages or superorganisms; types of communities; community structure; diversity and stability; succession.	4
7.	The ecosystem concept; ecological energetics; primary production; energy flow; trophic levels; energy and carbon; nutrient cycling.	2
8.	Landscape ecology; landscape structure and processes; landscape change; global ecology; the Gaia hypothesis; human impacts on global processes.	4
	Practicals/Tutorials:	6 x 4h= 24h
	Total hours:	50h

TEXT BOOK:

Molles, M. C., 2015. *Ecology: Concepts and Applications*. McGraw Hill, 7th Edition.

Smith, T. M. & R. L. Smith, 2015. *Elements of Ecology*. Pearson/Benjamin Cummings, 9th Edition.

MODE OF ASSESSMENT:

50% - Continual Assessments (Tests and reports)

50% - Final Exam (Closed Book; short answers and essays)

LECTURERS/Module Coordinators:

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