

Module Name Lake Ecology	Module Code LIWM 713 Lake Ecology	Credit Points/ECTS 3.0/6.0
Target Group BSc. graduates in biology, Environmental Sc & other related areas	Prerequisites Programme prerequisites	
Overall objective At the end of this course the participants should be able to demonstrate an understanding of the structure and functioning of tropical lake ecosystems, and their comparison with temperate lakes; the interaction of physical, chemical and biological processes in lakes for their wise use and proper management.		
Learning Objectives		
After successful completion of this module, participants will be able to:		
<ul style="list-style-type: none"> • Describe lakes based on formation, morphometry, mixing types and chemical composition; • Determine the composition and ecology of plankton communities (temperate and tropical systems); • Evaluate factors influencing production and trophic interactions in lakes (temperate and tropical lakes); • Evaluate the anthropogenic impacts (climate change and pollution) on tropical lake ecosystems; generate suitable methods for their protection and management. 		
Module Subjects		
<ol style="list-style-type: none"> 1. <i>Physical limnology and limno-chemistry:</i> 2. <i>Plankton and benthic community composition & ecology</i> 3. <i>Production (Primary and secondary production) and trophic relationships(energy flow) in lakes</i> 4. <i>Lake Management Strategies and Impact of Climate Change on Lakes</i> 		
Module syllabus		
The module will provide: 1. Formation and structure of different lake ecosystems; lake morphometry; physical, chemical and biological characteristics of lake ecosystems; interactions of geomorphology and physico-chemical characteristics; 2. Plankton, macrophyte and macrozoobenthos community structure (a. Phytoplankton composition and biomass estimation; b. Zooplankton (Rotifera, Cladocera, Copepoda) and macrozoobenthos composition and biomass estimation; 3. Production in lakes: Primary (phytoplankton, macrophytes and periphyton) and secondary (zooplankton and macrozoobenthos) production in lakes. Trophic relationships and energy flow in lakes. 4. Anthropogenic impacts (climate change and pollution) on tropical lake ecosystems. Lake restoration and management strategies. Case studies (Lakes Victoria, Nakuru, Baringo, Bogoria and Naivasha).		
Didactics	Assessment	
The contact hours include lectures, laboratory work, field-work, group discussions, seminars, assignments, data analysis and scientific report. Special emphasis is laid on field-work, practical laboratory work and data interpretation. Comparison of tropical lakes with temperate lakes made in terms of their ecological characteristics. Group and individual presentations and assignments, data-sets obtained during the course seminars are discussed. The interactions between biological and physico-chemical features are highlighted.	Part 1 (40%): written examination Part 2 (20%): Oral presentations Part 3 (20%): Scientific report Part 3 (10%): Practical activity Part 4 (10%): Assignments	
Lecturing Materials		
Lecture notes, laboratory manuals, reference materials (text books, scientific publications, Internet sources)		
Resource Persons:		
Module coordinator: Dr. Steve Omondi,		
Lake Formations and Physico-chemical Characteristics: Dr. Omondi/Prof. Kitaka		
Phytoplankton Ecology: Dr. Omondi/Prof. Kotut		
Zooplankton Ecology: Dr. R. Omondi/Dr. Ongondo/Dr. Mengistou		
Lake Production: Dr. Omondi/Dr. R. Omondi/Dr. Mengistou		
Lake Management and Climate Change: Prof. Kitaka/Dr. Omondi/Dr. Sitoki.		
Technical Staff: Mr. Lweis Mungai.		