

THOMAS ADEWUMI UNIVERSITY OKO COURSE OUTLINE		
Faculty	COMPUTING AND APPLIED SCIENCES	
Department	BIOLOGICAL SCIENCES	
Course title	AQUATIC MICROBIOLOGY	
Year of study	4	
Course code	MCB 409	
Credit hours	2	
Contact hours	30	
Mode of delivery	CLASSROOM LECTURES	
Mode of assessment		WEIGHT%
Continuous assessment		30%
Final examination		70%
Total		100%
Course lecturers and Instructors	MR. BAMIDELE OLADAPO -LECTURER	
Course description	Aquatic microbiology deals with study of microbes of aquatic system such as fresh or salt water systems. It includes microscopic plants, animals, bacteria, viruses and fungi as well as their behaviour, relation with other organisms in the aquatic environment.	
Course objectives	<p>This course will make it possible to understand</p> <ol style="list-style-type: none"> 1. The nature and peculiarities of the aquatic environment 2. The importance of microorganism in that environment 3. Primary lifestyles of microbial aquatic life and their strategy to obtain energy and build biomass. 4. Microbial diversity, modern approaches to assess. 5. Aquatic microbial metabolic strategies and predict where they occur. 6. Components to microbial food webs and predict shifts in food web structure with environmental change. 7. Nutrient cycling and how microbes are major players in aquatic nutrient cycles. 8. How aquatic microbes impact agriculture and public health fields. 	
Learning outcomes	By the end of the course, students will be able to:	

	<ol style="list-style-type: none"> 1. Describe the nature and peculiarities of the aquatic environment 2. Explain the importance of microorganism in that environment 3. Explain the primary lifestyles of microbial aquatic life and their strategy to obtain energy and build biomass. 4. Describe the microbial diversity, modern approaches to assess. 5. Explain aquatic microbial metabolic strategies and predict where they occur. 6. Describe the components to microbial food webs and predict shifts in food web structure with environmental change. 7. Define the nutrient cycling and how microbes are major players in aquatic nutrient cycles. 8. Explain how aquatic microbes impact agriculture and public health fields.
Teaching and learning	The class will meet for two hours a week.
Detailed course content	Nature of aquatic environment. Microbiology of water supply, microbial flora of surface and ground waters. Water treatment, water supply and public health. Conventional and advanced water treatment and the use of waste water in agricultural irrigation, fish culture, industry and for municipal purpose; Sewage and sewage disposal; Microbial aspect of water management; Eutrophication and bioremediation. Evolution, ecology and diversity of marine environment; Origin of life in the sea and the evolutionary patterns suggested by the marine fossil beds; Diversity of plants and animals in each environment and the adaptations they have to vastly different conditions.
Course content sequencing	
Weeks	
Week 1	Nature of aquatic environment. Microbiology of water supply, microbial flora of surface and ground waters.
Week 2 - 3	Water treatment, water supply and public health. Conventional and advanced water treatment and the use of waste water in agricultural irrigation, fish culture, industry and for municipal purpose;
Week 4	Continuous Assessment 1
Week 5	Sewage and sewage disposal; Microbial aspect of water management

Week 6	Eutrophication and bioremediation.
Week 7	Liquid waste management.
Week 8	Microbial Bioremediation
Week 9 – 11	Continuous Assessment 2 Evolution, ecology and diversity of marine environment; Origin of life in the sea and the evolutionary patterns suggested by the marine fossil beds;
Week 12	Revision
Recommended reading material	
<p>1. Joanne Willey and Kathleen Sandman and Dorothy Wood (2020). Prescott's Microbiology. McGraw-Hill Higher Education</p> <p>2. Michael T. Madigan, Kelly S. Bender, Daniel H. Buckley W. Matthew Sattley and David A. Stahl (2019). Brock Biology of Microorganisms. Pearson Educational Limited</p>	

Course code: MCB 306

Course title: AQUATIC MICROBIOLOGY

Preamble: Aquatic microbiology deals with study of microbes of aquatic system such as fresh or salt water systems. It includes microscopic plants, animals, bacteria, viruses and fungi as well as their behaviour, relation with other organisms in the aquatic environment.

Specific course objectives/learning outcomes.

The course will enable the understanding of the following:

1. The nature and peculiarities of the aquatic environment
2. The importance of microorganism in that environment
3. Primary lifestyles of microbial aquatic life and their strategy to obtain energy and build biomass.
4. Microbial diversity, modern approaches to assess.
5. Aquatic microbial metabolic strategies and predict where they occur.
6. Components to microbial food webs and predict shifts in food web structure with environmental change.
7. Nutrient cycling and how microbes are major players in aquatic nutrient cycles.
8. How aquatic microbes impact agriculture and public health fields.

Learning activities/Course delivery methods

1. Lectures: detailed content of course are taught in class

2. Laboratory Sessions: the practical application of the course is demonstrated in the laboratory

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