

**THOMAS ADEWUMI UNIVERSITY OKO
COURSE OUTLINE**

Faculty	Computing and applied science	
Department	Biological Sciences	
Course title	PRINCIPLES OF EPIDEMIOLOGY AND PUBLIC HEALTH	
Year of study	4	
Course code	MCB 404	
Credit hours	3	
Contact hours	45	
Mode of delivery	CLASSROOM LECTURES	
Mode of assessment		WEIGHT%
Continuous assessment		30%
Final examination		70%
Total		100%
Course lecturers and Instructors	MRS F.J. OLAITAN-LECTURER	
Course description	<p>The course "Principles of Epidemiology and Public Health" imparts a thorough grasp of epidemiological concepts and their application in public health. It explores statistical methods for epidemiological research and delves into infectious disease dynamics and control. The course addresses disease patterns, risk factors, herd immunity, and infectious disease dynamics. It also covers antigenic drift, immunization, and its public health implications. Through case studies and exercises, students learn to analyze disease trends, contribute to investigations, and understand the interplay of epidemiology and public health.</p>	
Course objectives	<p>This course will facilitate the understanding of:</p> <ol style="list-style-type: none"> 1. The key principles and concepts of epidemiology and their role in public health. 	

	<p>2. Apply statistical methods to analyze disease patterns and risk factors.</p> <p>3. The spectrum of infections and their dynamics within populations.</p> <p>4. The concepts of herd immunity and latency of infections.</p> <p>5. The influence of multi-factorial systems in epidemics.</p> <p>6. Zoonotic infections and their impact on human health.</p> <p>7. Antigenic drift and shift and their relevance to disease control.</p> <p>8. The significance of biological products, including vaccines, in immunization.</p> <p>9. The implications of epidemiological findings for public health interventions.</p>
Learning outcomes	<p>By the end of the course, students will be able to:</p> <p>1. Explain at least five key principles and concepts of epidemiology and their role in public health.</p> <p>2. Apply statistical methods to analyze disease patterns and risk factors.</p> <p>3. Explain the spectrum of infections and their dynamics within populations.</p> <p>4. discuss the concepts of herd immunity and latency of infections.</p> <p>5. Recognize the influence of multi-factorial systems in epidemics.</p> <p>6. Discuss zoonotic infections and their impact on human health.</p> <p>7. Explain antigenic drift and shift and their relevance to disease control.</p> <p>8. Evaluate the significance of biological products, including vaccines, in immunization.</p> <p>9. Assess the implications of epidemiological findings for public health interventions.</p>
Teaching and learning	The class will be taught for three hours a week.
Detailed course content	Statistical applications to epidemiology. Nature of epidemiological investigations. Spectrum of infections. Herd immunity. Latency of infections. Multi-factorial systems in epidemics. Zoonoses. Antigenic drift and shift. Biological products for immunization.

Course content sequencing	
Weeks	
Week 1	Introduction to Epidemiology and Public Health
Week 2 & 3	Statistical Applications in Epidemiological Investigations
Week 4	Herd Immunity and Latency of Infections
Week 5 & 6	Spectrum of Infections and Disease Patterns
Week 7	Multi-Factorial Systems in Epidemics
Week 8 & 9	Zoonotic Infections and Human Health
Week 10	Antigenic Drift and Shift in Pathogens
Week 11	Biological Products for Immunization and Disease Prevention
Week 12	Revision
Recommended reading material	
<p>1. Joanne Willey and Kathleen Sandman and Dorothy Wood (2020). Prescott's Microbiology. 11th Edition.</p> <p>2. Bryan Kestenbaum(2019).Epidemiology and Biostatistics Springer Nature Switzerland AG. https://doi.org/10.1007/978-3-319-97433-0</p>	

A. Course code: **MCB 404**

B. Course title: **Principles of Epidemiology and Public Health**

C. Preamble: The course "Principles of Epidemiology and Public Health" imparts a thorough grasp of epidemiological concepts and their application in public health. It explores statistical methods for epidemiological research and delves into infectious disease dynamics and control. The course addresses disease patterns, risk factors, herd immunity, and infectious disease dynamics. It also covers antigenic drift, immunization, and its public health implications. Through case studies and exercises, students learn to analyze disease trends, contribute to investigations, and understand the interplay of epidemiology and public health.

A. Specific course objectives/learning outcomes.

The course will enable the understanding of the following:

1. Understand the key principles and concepts of epidemiology and their role in public health.
2. Apply statistical methods to analyze disease patterns and risk factors.
3. Explain the spectrum of infections and their dynamics within populations.
4. Analyze the concepts of herd immunity and latency of infections.
5. Recognize the influence of multi-factorial systems in epidemics.
6. Discuss zoonotic infections and their impact on human health.
7. Explain antigenic drift and shift and their relevance to disease control.
8. Evaluate the significance of biological products, including vaccines, in immunization.
9. Assess the implications of epidemiological findings for public health interventions.

B. Learning activities/Course delivery methods: TEACHING AND PRACTICALS

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

Course content: Statistical applications to epidemiology. Nature of epidemiological investigations. Spectrum of infections. Herd immunity. Latency of infections. Multi-factorial systems in epidemics. Zoonoses. Antigenic drift and shift. Biological products for immunization.