



LANDMARK UNIVERSITY, OMU-ARAN

COURSE COMPACT

Course

Course code: MCB 423

Course title followed by the credit unit. Virology II (2 UNITS)

Course status: - Compulsory

Course Duration

Two hours per week for 15 weeks (30 hours)

Course lecturers: Okolie CEO and Ndako JA

Lecturer's Data

Name of lecturer: OKOLIE Charles

Highest qualifications obtained: PhD

Department: Biological Science

College: College of Science and Engineering

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Name of lecturer: NDAKO James A.

Highest qualifications obtained: PhD

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A. Brief Overview:

Course Content:

Structural properties, pathology and pathogenesis, laboratory diagnosis, epidemiology and prophylactic/therapeutic procedures some viral agents of animals and plants common in Africa and Nigeria.

Course Description – Illustration below:

- Viruses are a unique group of biological entities known to infect every type of cell, although the emphasis in this course is on animal viruses, efforts will be made to mention plant viruses.
- Pathogenesis is the process by which an infection leads to disease.
- The topic would explore Pathogenic mechanisms of viral diseases which includes (1) implantation of virus at the portal of entry, (2) local replication, (3) spread to target organs (disease sites), and (4) spread to sites of shedding of virus into the environment. Factors that affect pathogenic mechanisms such as accessibility of virus to tissues, cell susceptibility to virus multiplication, and virus susceptibility to host defences would be emphasised.

Course Justification:

- Interest in viral pathogenesis stems from the desire to treat or eliminate viral diseases that affect humans.
- This goal is achieved in part by identifying the viral and host genes that influence the production of this viral disease.
- The requirement that must be satisfied to ensure successful infection in an individual host: Sufficient virus must be available to initiate infection.
- Cells at the site of infection must be accessible, susceptible, and permissive for the virus while Local host anti-viral defense systems must be absent or initially ineffective.
- These reasons partly justify the basis for this course.

Course objectives:

- To fully emphasize the replication at the site of entry of some viruses under study.
- Highlighting the ability of virus particles to remain localized, or spread to other sites.
- To understudy how infection in the epithelium occurs when newly released virus infects adjacent cells.
- Ability of these infections been contained by the physical constraints of the tissue and brought under control by the intrinsic and immune defenses.
- To elucidate infections that spreads beyond the primary site of infection which is referred to as disseminated.

- To understudy the basis of when the organs become infected, the infection is described as systemic.
- To mention the spread beyond the primary site of a viral infection, this involves breaching the physical and immune barriers.

Course Requirement –

- Students’ ability to attend classes uninterrupted.
- Ability to actively participate in group discussions, timely submission of any given assignment.
- Participation of students in the three statutory CA tests.

Method of Grading:

S/N	Grading	Score (%)
1.	Test 1	07
2.	Test 2	15
3.	Test 3	08
4.	Final Examination	70
	Total	100

C. Course Delivery Strategies –

- Lecturing method complimented with group discussions will be adopted.
- Working programs will be demonstrated through examples of some infectious cases involving some of the viruses under case study,
- Students will be given take home assignments to write, execute and discuss
- Students may sometimes be grouped for laboratory work.

D. Course Outline:

DETAILS OF LECTURE CONTENT

Week 1: Introductory and General overview of the course content.

The students at the end of the lecture series should be able to understand the:

Epidemiology

Structural properties

Pathology and pathogenesis

Laboratory diagnosis and prophylactic/therapeutic procedures of some viral agents of human, animal and plant importance common in Nigeria and Africa that would be fully highlighted in the Semester.

Description

First hour:

Overview of specific details of some viral families, their Genomic and physical characteristics including the infectious nature of each virus family would be illustrated based on their Epidemiological Characteristics.

Week 2- Herpes simplex virus type 1: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. NDAKO

Week 3- Herpes simplex virus type 2: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. NDAKO

Week 4- Rhabdoviridae: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. NDAKO

Week 5- Hepadnaviridae: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. NDAKO

Weeks 6- Viral Haemorrhagic fever: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. An ex. of Arboviruses would be mentioned. ---NDAKO

Week 7- Human Papilloma Virus (HPV): Epidemiology, Structural properties, Pathology and pathogenesis, Laboratory diagnosis and its association **with carcinoma of the cervix**. NDAKO

Week 8- Viral agents of gastroenteritis Ex. of Poliovirus: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. NDAKO

Week 9- Viral agents of gastroenteritis Ex. of: Rotavirus: Epidemiology, Structural properties, Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. NDAKO

Week 10- Viral agents of gastroenteritis Ex. Adenovirus: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. OKOLIE

Week 11- Human immunodeficiency Virus: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. OKOLIE

Week 12- Animal viruses Ex. Newcastle Disease Virus (NDV) of poultry and Foot and Mouth disease (FMD) of Cattle: Epidemiology, Structural properties Pathology and pathogenesis, Laboratory diagnosis and prophylactic/therapeutic procedures. OKOLIE

Week 13 Plant viruses and transmission of infection Ex. are Tobacco Mosaic Virus (TMV) and Cassava Mosaic Virus (CMV) with Economic relevance of plant viruses. OKOLIE

Weeks 14 and Week 15-----Revision Exercise-----Okolie /Ndako

Reading List:

List of reference material:

- ✚ Wiley Microbiology and Virology.
- ✚ Medical Microbiology texts.
- ✚ Principles of Virology: Pathogenesis and Molecular basis of Diagnosis.

HOD's Observations and further Comments:

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