

**DEPARTMENT OF BIOLOGICAL SCIENCES  
COLLEGE OF SCIENCE AND ENGINEERING  
LANDMARK UNIVERSITY**

**2014/2015 SESSION**

**MCB112 (Cell BIOLOGY)/2 UNITS**

Course code: BLY112 Units: 2

Course Title: Cell Biology

Course Lecturer: Dr. Osemwegie, O.O. and Dr. Oyebanji

Semester: Alpha Semester; 2014/2015 Academic Session.

Time of Lecture: Prescribed by the Examination and Time-table Committee, LMU

Location: Prescribed by the Examination and Time-table Committee, LMU.

*A. Brief Overview*

The course introduces students to basic concepts e.g. gene, mutation, ecology, polymer molecule. The knowledge of cell evolution and history, structure/organization, types and their contrasts/classifications, characteristics and organelles' individual and collective functions, cell interaction/communication and transports of materials across cell membranes will also be introduced to the students. Also introduced to are the methods in cell biology research and the significance of cell divisions as they affect the functionality of any living system.

*B. Course Objectives/Goals*

- (i) Improve knowledge on the relevance of cell to the life of any living system.
- (ii) Provide a vivid insight into the world of cells.
- (iii) Understand how cell interactions drive metabolic processes in a living system.
- (iv) Exposure to the various experimental methods of carry out cell based study/research.
- (v) Using the mechanisms of cell divisions a tool to demystifying reproductive processes and abnormal cell growth.
- (vi) Understand how different forms of useful materials enter and waste exit the cell.
- (vii) Provoke and sharpen cell research interest in students.
- (viii) Impacting conscious appreciation of nature.
- (ix) Improve students understanding of cell and organelles' functions.
- (x) Provide a knowledge base that directly or indirectly make students valid competitors in professional, industrial, scientific and academic endeavours.

*C. Method of Lecture Delivery/Teaching Aids*

Power point presentations especially in illustrative topics coupled with note dictations.

*D. Course Outlines*

Module 1

Week 1: Definition of cell biology, significance of the understanding of cell biology.

Week 2: Definition of a cell, evolution/history of cell, type of cells i.e. plant cell and animal cell; prokaryotic and eukaryotic cells; unicells and multicells, comparison and contrast between type of cells.

Week 3: endosymbiotic theory, structure of typical prokaryote and eukaryote, cell organization.

Week 4: Organelles e.g. endomembrane system (ER, Vacuoles, Vesicles, GB); chloroplast; nucleus; mitochondria etc and their respective functions.

## Module 2

Week 5: heredity with focus on the Gene

Week 6: Techniques/methods use in cell biology e.g. microscopy; cell culture; immunostaining; gene knockdown; PCR; computational genomics; flow cytometry etc.

Week 7: Membrane Transport System, Cell communication/interaction.

Week 8: Cell division e.g. mitosis and meiosis.

**Note: Modules 1-6** is taken by the course co-ordinator and **Modules 7-8** by the teaching assistant.

### *E. Tutorials*

To be provided on students' request.

### *F. Structure of Programme/Method of Grading*

There shall be two continuous assessment administered to students at 5% score from each module, the cumulative scores on assignments shall constitute 10%.

The examination shall compose both multiple choice and short answer questions of 70% total score. Total score at the end of the alpha semester shall be 100%.

### *G. Ground Rules and Regulations*

- (i) 75% class attendance and participation is required from students to be eligible for BLY112 examination.
- (ii) No student shall be allowed into lecture 10 minutes after commencement of lecture.
- (iii) Any immodestly dressed student shall be advised to leave class.
- (iv) Any student that failed to participate in class exercises shall be reprimanded.
- (v) Assignment that was not submitted and delivered to the course teacher within stipulated time frame shall not be graded.
- (vi) Students shall be required to compliment knowledge gained in class by engaging in further reading for better grade standing.

### *H. Topics for Term Paper/Assignment*

Topics for discussion will be generated by the course teacher.

### *I. Alignment with Goals and Vision of Landmark University*

- J. The proviso in the course content and ground rules connect with the University core values of responsibility, possibility mentality, capacity building and diligence. The subject of cell

biology holistically is thought provoking and if well applied will raise a feedback of armies that will shock the world with impacting discoveries.

*K. Contemporary Issues/Industrial Relevance*

(i). The study and knowledge of cell evolution i.e. chemical evolution, spontaneous generation, new cells evolving from pre-existing ones, Individualistic creation by a supreme God etc. remained a controversial topic of debate all over the world and fundamental to discovering the origin of life.

(ii) Understanding the behaviour of cell during division has unlocked approach into cancer treatment research.

(iii). The share manipulation of cellular functions or metabolic process has revolutionised contemporary issues of global concern that bothers on food security, cloning, nano and stem cell technology etc.

*L. Recommended Reading*

Any general/cell biology book/internet search of relevant topics is acceptable and recommended.