



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Forestry and Wood Technology

BCH 201 - General Biochemistry I

COURSE PARTICULARS

Course Code: BCH 201

Course Title: General Biochemistry I

No. of Units: 3

Course Duration: Three hours of theory per week for 15 weeks.

Status: Compulsory

Course Email Address: BCH201@gmail.com

Course Webpage: <http://www.bch.futa.edu.ng/courseschedule.php?coursecode=BCH%20201>

Prerequisite: NIL

COURSE INSTRUCTORS

Dr. A. C. Akinmoladun (Course coordinator)

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and

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Dr. F. M. Olajuyigbe

Dr. A. O. Ademiluyi

Dept. of Biochemistry,

Federal University of Technology, Akure, Nigeria.

COURSE DESCRIPTION

This course is designed to introduce students to the basic concept of Biochemistry as a discipline. Foundational topics such as the definition and scope of Biochemistry, cell, acidity and alkalinity and the properties and biological functions of the major biomolecules (carbohydrates, proteins, lipids and nucleic acids) will be covered. This course is important for students of Biochemistry, other biological sciences, agricultural sciences and Chemistry.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to Biochemistry as a course; and
- provide students with the foundational knowledge for further studies in Biochemistry and related disciplines.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- explain what the study of Biochemistry entails;
- understand the applications of Biochemistry;
- differentiate between prokaryotes and eukaryotes;
- explain the relationship between the pH and pK_a of solutions; and
- explain the properties and biological functions of the major biomolecules

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Class Attendance	5%
Assignments	15%
Test(s)	20%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in tutorials. Attendance records will be kept and used to determine each person's qualification to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments: Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Halls: Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, *etc.*) during lectures. Food and drinks are not permitted in lecture halls.

READING LIST

²Department of Biochemistry, The Federal University of Technology, Akure, Nigeria (2012).
Introductory Biochemistry, 1st Edition. Jubee – Niyi Publishers, Akure, Nigeria.

^{1, 2}Nelson, D. L. and Cox, M. M. (2004). Lehninger Principles of Biochemistry, Fourth Edition.
W. H. Freeman & Company.

Legend

- 1- Available in the University Library
- 2- Available in Departmental/School Libraries
- 3- Available on the Internet.
- 4- Available as Personal Collection
- 5- Available in local bookshops.

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Overview Definition and scope of Biochemistry	During this first class, the students will learn the meaning, scope and importance of Biochemistry.
2	Cell	Students will be taught general principles about cell, cell types – prokaryotic and eukaryotic, animal and plant cells, cell organelles and functions.
3, 4 & 5	Acidity and alkalinity	Students will be instructed on the definition of an acid and a base, dissociation constants, pH, pKa, derivation of the Henderson-Hasselbalch equation, buffers and buffering capacity and steps for drawing a titration curve.
6 & 7	Carbohydrates	During this class, students will learn about the classification and importance of carbohydrates, D and L isomerism, mutarotation and ring structures, stereoisomers and epimers, reactions of sugars, polysaccharides and glycoconjugates.
8, 9 & 10	Amino acids and proteins	Students will be taught classification of amino acids, properties of amino acids, peptides and peptide bond, proteins, protein structure and function, forces controlling protein structure, protein function and methods for protein isolation and purification
MID-SEMESTER TEST		
11 & 12	Nucleotides and nucleic acids	In this class, students will learn about the importance and biological functions of nucleotides and nucleic acids, the three characteristic components of nucleotides, ribonucleic acids and deoxyribonucleic acids, purines and pyrimidines, nucleosides, primary and secondary structures of DNA, chromosomes and genes.

13 & 14	Lipids	Students will be learn about the diversity of the classes of compounds classified as lipids, the biological functions of lipids, fatty acids, essential fatty acids, storage lipids such as triacylglycerols and waxes, structural lipids such as glycerophospholipids, galactolipids, sulfolipids, sphingolipids and sterols.
15	REVISION	This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met.