



### Biochemistry

Course Code	Course Num.	Course Name	Credit Hours	Lec	Lab	Tut	Prerequisites
BIO	437	Biochemistry	3	2	2	0	BIO436

#### **Objectives:**

The student should achieve an understanding of the following:

- Basic cellular structure
- The special properties of water and how the aqueous environment influences the behavior of biological macromolecules
- The structures of amino acids, their chemical properties and their organization into polypeptides and proteins.
- Methods for isolating and characterizing proteins
- The basic elements of protein structure
- Key principles of protein function.
- Enzymes and how they catalyze reactions as well as enzyme kinetics
- Structure of fundamental monosaccharides and polysaccharides
- Structure and basic function of nucleotides
- Structure of different classes of lipids and their roles in biological
- To develop a sufficient background for those students who wish to study more advanced biochemistry topics
- To provide familiarity with basic biochemistry laboratory techniques to provide familiarity with the requirements for scientific writing, as exemplified by a short lab report

#### **Syllabus:**

- Amino acids and peptides Structure and Functin.
- Carbohydrates: structure, mono saccharides disaccharides.
- Lipids structure and functions.
- Nucleotides biosynthesis
- Glycolysis and gluconeogenesis, The Citric acid Cycle, Oxidative Phosphorylation
- The Light Reaction of photosynthesis
- The calvin Cycle and Pentose.
- Carbohydrates Metabolism.
- Lipids Metabolism.
- Protein Metabolism.

#### **References:**

- David L. Nelson. Lehninger Principles of Biochemistry Sixth Ed,( 2012). ISBN-13: 978-1429234146.
- Lubert Stryer. Biochemistry – (2015), ISBN-13: 978-1464126109

