معلومات المقرر * (Course Information):

اسم المقرر:	كيمياء حيوية -1
رقم المقرر:	CHM361
اسم ورقم المتطلب السابق:	كيمياء عضوية- 2
اسم ورقم المتطلب المرافق:	لايوجد
مستوى المقرر:	5
الساعات المعتمدة:	3

Module Title:	Biochemistry-1
Module ID:	CHM361
Prerequisite (Co-requisite) :	CHM222
Co-requisite :	Non
Course Level:	5th level
Credit Hours:	3

Module Description وصف المقرر :

The overall objective of CHEM361 is to provide a general knowledge upon the general bases of biochemistry. Students will gain the basic biochemical knowledge necessary to meet the institutional objectives and goals for general Chemistry. In addition to basic biochemistry, students will acquire information emphasizing cell, carbohydrate, lipids, proteins, general metabolic pathways of these macromolecules.

Module Aims أهداف المقرر :

1	Studying Biochemistry، definitions, Cell Definition، A simplified description of the cell's organs and functions.
2	Describe of Carbohydrates classification, types of monosaccharide's and their Isomerism and reactions. Disaccharide and polysaccharide.

3	Studying lipid classification, fatty acids, Properties of fatty acids and the most important reactions.	
4	Studying amino acids classification and properties, Peptides formation and nomenclature.	
5	To be Knows Proteins, structure, Denaturation, Vital functions.	
6	Studying Carbohydrate metabolism, lipids and Protein.	
7	Studying different types of Carbohydrates; Mono, Di and Poly Saccharides.	
8	Studying the Lipids Identification ,Differentiation between Saturated and un-saturated fatty acids	
9	Studying the Protein Identification and Amino acids Reactions	
10	Studying the Unknown Identification Whether belongs to Carbohydrates, Lipids or Proteins	

Learning Outcomes: **مخرجات التعليم:**

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

1	In-depth understanding Biochemistry, Definition of cells, A simplified description of the cell's organs and functions.	
2	Recognize the Carbohydrates classification, types of monosaccharides and their Isomerism and reactions. Disaccharide and polysaccharide.	
3	Knowledge about lipid classification, fatty acids, Properties of fatty acids and the most important reaction.	
4	Explain/describe the synthesis of proteins, lipids, nucleic acids, and carbohydrates and their role in metabolic pathways.	
5	Use current biochemical and molecular techniques to plan and carry out experiments.	
6	Analyze primary literature. This will include evaluation of experimental techniques.	
7	Effectively participate in all Laboratory and methodology activities.	
8	Know and follow proper procedures and regulations for safe handling, use, and disposal of chemicals.	
9	Effectively and respectfully, communicate and collaborate with colleagues.	

جامعة المجمعة
Majmaah University
قسم الكيمياء
Department of Chemistry
College of Science in Zulfi

Course Contents: محتوى المقرر:

ساعات التدريس (Hours)	عدد الأسابيع (Weeks)	قائمة الموضوعات (Subjects)
2	2	Basic Biochemistry, structure, and properties of water and buffers.
2	1	Carbohydrates definition, Vital importance, Classification of carbohydrates, Isomerism of monosaccharide((L and D forms, epimers, annular structure, α and β forms)
2	1	Sugar's most important reactions, Major types of Disaccharide (Sucrose, Maltose and Lactose), Polysaccharide (starch, glycogen, cellulose).
2	1	Definition of lipids and their importance, Classification of Lipids (Simple - Compounds - Derived), Fatty acids and examples, Properties of fatty acids and their most important reactions(Their interaction with alcohols, alkalis, halogens and hydrogen and ionization).
2	1	Glycerides, (Composition, vital importance and interaction with alkali), Phosphorus fat (composition and biological significance), Steroids (composition and biological importance).
2	1	Definition of peptides and Composition of peptide bond, The most important characteristics of peptide bond, peptides nomenclature, Definition and classification of proteins.
2	1	Protein synthesis levels (primary, secondary, tertiary and quadrilateral), Denaturation of protein, The important functions of proteins.
2	1	Definition of metabolism and its importance to living organisms, demolition and construction processes, and most important chemical reactions in metabolic pathways.
2	1	Digestion and absorption of carbohydrates in the gastrointestinal tract.
2	1	Glucose Analysis (definition - results of analysis by oxygen availability in the cell - where it occurs - its importance - factors regulating it).s
2	1	Krebs Cycle (definition - conversion of pyruvate to acetylcholine a - where it occurs in the cell - its importance and factors regulating it - its products and its association with the metabolic pathways of protein and fat).
2	1	Fat digestion and absorption- general framework of fat metabolism. Oxidation of fatty acids (importance and where they occur).
4	2	Digestion and absorption of proteins, an overview of amino acids metabolism in the liver Demolition of amino acids and removal of ammonia by the cycle of urea and the correlation of this cycle with Krebs cycle.
		PRACTICAL

2	1	Carbohydrates Identification.
4	2	Differentiation between Mono, Di and Poly Saccharides.
2	1	Quantitative estimation of reduced sugars in aqueous solutions.
2	1	Protein Identification and Amino acids Reactions.
2	1	Separation of a mixture of Albumin and Globulin.
4	2	Identification and differentiation among different proteins.
2	1	Quantification of proteins in aqueous solutions.
4	2	Lipids Identification and Determination of iodine number and acids in lipid.
2	1	Differentiation between Saturated and un-saturated fatty acids.
2	1	Unknown Identification Whether belongs to Carbohydrates, Lipids or Proteins.

Textbook and References: الكتاب المقرر والمراجع المساندة:

ISBN	سنة النشر Publishing Year	اسم الناشر Publisher	اسم المؤلف (رئيسي) Author's Name	اسم الكتاب المقرر Textbook title
978-0-470-91410-6	2011	Wiley	Donald Voet	Biochemistry, 4th Edition
	سنة النشر Publishing Year	**اسم الناشر Publisher**	**اسم المؤلف (رئيسي) Author's Name**	**اسم المرجع Reference**
9781608314126 160831412X 9781609139988 1609139984 9780781769600 0781769604	2011	Philadelphia : Wolters Kluwer Health/Lippincott Williams & Wilkins	Richard A. Harvey	**Biochemistry, 5th Edition**

* يتم تعبئة معلومات المقرر فقط باللغتين العربية والانجليزية وباقي المعلومات بلغة التدريس المعتمدة ويكرر لكل مقرر في الخطة الدراسية

* **Course Information should be filled in Arabic and English. Other information should be filled using the approved teaching language at the college.**

جامعة المجمعة
Majmaah University
قسم الكيمياء
Department of Chemistry
College of Science
in Zulfi