

Course Specification

Biochemistry I

1. General Information:

Course Title	Biochemistry I
Code No.	BI713
Department	Biochemistry
Teaching hours	150hrs
Language	English
Academic Year	First Year
Course Coordinator	Dr. Aisha Balkhar Mohamed
Date and Signature	September 2020

1.1 . Number of hours per week:

Lectures: 4hrs.

Laboratory: 2hrs.

Training: 1hr.

Total: 7hrs.

2. Objectives of Course:

- Students should be familiar with structure, classification, function and mode of action of various chemical compounds in the living cell.
- To provide the students with an appropriate exposure to the medical biochemistry discipline. This will assist students in understanding biochemical alteration in health and disease.
- To provide students with good knowledge about structure and function of carbohydrate, lipids and proteins, nutrition and body allowance from all macronutrients and micronutrients.

3. Intending Learning Outcomes (ILOs):

a. Knowledge and Understanding:

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

a.1	Define the structure and function of carbohydrates, lipids, proteins, nucleotides and enzymes
a.2	Illustrate the mode of action and kinetics of enzymes and their role in the diagnosis of diseases
a.3	Describe structure and role of vitamins derivatives as coenzymes necessary for the activity of enzymes
a.4	Identify disorders resulted from vitamins and minerals deficiency and their clinical prints on the biochemical and molecular basis
a.5	Describe the biological transport and cell membrane and their biochemical, clinical and laboratory importance
a.6	Explain DNA and RNA structures, DNA replication and mutation as well as RNA transcription and protein biosynthesis.
a.7	Understand body fluid components, acid, base and buffer, Ig structure and bio-signalling

b. Intellectual skills:

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

b.1	Analyze important biochemical laboratory findings of some vitamins minerals deficiency and their correlation to clinical manifestation of a resultant disorder
b.2	Interpret some plasma proteins electrophoresis
b.3	Discuss the application of molecular biology in basic and clinical sciences

c. Practical and Professional Skills:

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

c.1	Identify reagents and instruments used in biochemistry laboratory
c.2	Identify the physical and chemical properties of carbohydrates
c.3	Perform chemical tests to study the properties of lipids and fatty acid
c.4	Identify the physical and chemical properties of amino acids and proteins
c.5	Measure and estimate total plasma proteins

d. General and Transferable Skills:

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

d.1	Work effectively in a group in lab or during preparation of seminars
d.2	Utilize the available resources of biomedical information to update the knowledge
d.3	Have the ability to prepare oral and written presentations using a proper IT skills
d.4	Communicate and interact with colleagues and staff members respectfully

4. Course Contents:

Academic Subject	Total Hours (150)	Lectures	Laboratory	Tutorials
Chemistry of Carbohydrate	18	12	4	2
Chemistry of Lipid	20	14	4	2
Chemistry of Amino Acid and Proteins	18	14	2	2
Biological Transport and Cell Membrane	3	2	-	1
Vitamins	9	6	2	1
Minerals	12	8	2	2
Enzymes	16	10	4	2
Immunoglobulins	7	4	2	1
Body Fluid	18	12	4	2
Acid, Base and Buffer	7	4	2	1
Bio-signaling	10	6	2	2
Nucleic Acid Biochemistry	12	8	2	2

5. Teaching and Learning Methods :

- Lectures
- Practical Sessions
- Tutorials
- Student Group Presentation

6. Evaluation Methods

Evaluation Method	Date	Marks 150	%	ILOs Assessed
1 Annual Work		30	20%	
▪ Mid-year Exam	January	25		Knowledge, understanding and intellectual skills
▪ Student Presentation		5		Knowledge, understanding and intellectual skills
2 Final Exam	June	120	80%	
▪ Written		75		Knowledge, understanding and intellectual skills
▪ Practical		30		knowledge, understanding and intellectual skills Practical and professional skills General and transferable skills
▪ Oral		15		Knowledge, understanding and intellectual skills Professional, general and transferable skills

7. Evaluation Schedule:

Evaluation		Date
1	Mid-Year exam: Written exam includes different types of questions MCQs, True & False, short essay questions, matching and complete the blanks	January
2	Final written exam: consists of different types of questions MCQs, True & False, short essay questions, matching and complete the blanks	June
3	Practical exam: Perform tests related to subjects, spot diagnosis	
4	Oral exam: mainly conducted by external visitors	
5	Student Presentation	Before mid-year exam

8. References:

Reference Title	Publisher	Edition	Author	Place
Course books	Sirte University	==	Addison Sadafian	Library
Essential Books	Lippincott William & Wilkins	3 rd 2005	Champe PC, Harvey RA, Ferrier DR,	==
Recommended Books	Wiley -Lewis	5 th 2002	Devlin TM Ed	==
	McGraw-Hill companies	26 th 2003	Murray RK, Granner DK, Mayes PA, Rodwell VW	==
Web Sites	http://www.kumc.edu/biochemistry/resource.html http://www.medlib.iupui.edu/ref/biochem.htm http://www.Sciencedaily.com			

9. Required Facilities:

Required Facilities	Comments
Lecture Theatre	Provided by the Faculty (1 theater and 1 large hall).
Small group classes	In the Department (60 students).
Laboratory	are available at the department
Video zoom camera	Used in distance learning
Social media group	Facebook and telegram

Course Coordinator: Dr.Aisha Balkhar Mohamed

Programme Coordinator: Dr. Hussain Amaigil

Head of Department: Dr. Aisha Balkhar Mohamed

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Signature:.....

Signature:.....

Date: September 2020

Course ILOs Mapping Matrix – Biochemistry I

Topic	Knowledge and Understanding a							Intellectual Skills b			Practical and Professional Skills c					General and Transferable Skills d			
	1	2	3	4	5	6	7	1	2	3	1	2	3	4	5	1	2	3	4
Chemistry of Carbohydrate	x									x	x	x				x	x	x	x
Chemistry of Lipid	x			x		x				x	x		x			x	x	x	x
Chemistry of Amino Acid and Proteins	x		x	x				x	x	x	x			x	x	x	x	x	x
Biological Transport and Cell Membrane					x					x	x					x	x	x	x
Vitamins			x	x				x			x					x	x	x	x
Minerals				x				x			x					x	x	x	x
Enzymes	x	x	x					x			x					x	x	x	x
Immunoglobulins							x	x			x					x	x	x	x
Body Fluid							x	x			x					x	x	x	x
Acid, Base and Buffer							x	x			x					x	x	x	x
Bio-signaling							x	x			x					x	x	x	x
Nucleic Acid Biochemistry						x					x			x		x	x	x	x