

Republic of Yemen
Ministry of Higher Education & Scientific Research
21 September University for Medicals and Applied Sciences



Faculty of Clinical Pharmacy

Bachelor of Clinical Pharmacy & Pharm. D.

Course Specification of

Biochemistry 1

Course Code. (03.01.207)

2022



T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:	Reviewed by:	Head of the Department:	Vice Dean for Quality affairs	Dean of College:
Dr. Ebtesam Al- Zabedi	Dr. Ghamdan AL-Tahish	Dr. -----	Dr. Abdulelah Thabet	Dr. Ali Alyahawi

I. General Information:

1.	Course Title:	Biochemistry 1			
2.	Course Code:	03.01.207			
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours
			Lecture	Tutorial/Seminar	Lab
		2	2		0
4.	Level/ Semester at which this Course is offered:	2 nd Level / 1 st Semester			
5.	Pre –Requisite (if any):	Human biology & General chemistry			
6.	Co –Requisite (if any):				
7.	Program (s) in which the Course is Offered:	Bachelor of Clinical Pharmacy & Pharm. D.			
8.	Language of Teaching the Course:	English			
9.	Location of Teaching the Course:	Faculty of Clinical Pharmacy			
10.	Prepared by:	Dr. Ebtesam Al-Zabedi			
11.	Date and Number of Approval by Council:				

II. Course Description:

This course offers detailed study of the chemical compositions and the biological functions of the main biochemical molecules including carbohydrates, proteins, lipids and their components, enzymes, hormones, nucleic acids and vitamins. The practical part includes methods of qualitative and quantitative determinations of carbohydrates, proteins, amino acids, lipids, fatty acids and vitamins

III. Alignment Course Intended Learning Outcomes with program outcomes		
III. Course Intended Learning Outcomes (CILOs)		Referenced PILOs
A. Knowledge and Understanding: Upon successful completion of the course, students will be able to:		
a1	Discuss the core aspects of different structure of carbohydrates, proteins, lipids, nucleic acids, enzymes and vitamins. (Definition, functions, Classification).	A1
B. Intellectual Skills: Upon successful completion of the course, students will be able to:		
b1	Analyze basic biochemical reactions and correlate these with the laboratory findings.	B1
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:		
c1	Perform clinical laboratory tests commonly encountered in Biochemistry	C1
D. Transferable Skills: Upon successful completion of the course, students will be able to:		
d1	Use digital pharmacy for Self-learning skills and knowledge to new situations.	D3

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
a1	Discuss the core aspects of different structure of carbohydrates, proteins, lipids, nucleic acids, enzymes and vitamins. (Definition, functions, Classification).	▪ Lecture ▪ Instructor – student Interactive ▪ Office hour	▪ Exam ▪ Assignment ▪ Quiz
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
Course Intended Learning Outcomes		Teaching Strategies	Assessment Strategies
b1	Analyze basic biochemical reactions and correlate these with the laboratory findings.	▪ Lecture ▪ Instructor – student Interactive ▪ Exercises ▪ Solving Problem Methods	▪ Problem-Solving Exercises. ▪ Assignment ▪ Quiz

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(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
c1	Perform clinical laboratory tests commonly encountered in Biochemistry	- Lecture - Instructor – student Interactive - Self-Learning	- Exam - Assignment - Quiz
(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Use digital pharmacy for Self-learning skills and knowledge to new situations.	- Self-Learning - Seminar - Exercises	- Presentation - Assignment - Quiz

IV. Course Contents:

A. Theoretical Aspect:

NO .	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CLOs)
1	Carbohydrates	- Introduction to carbohydrates - Classification of monosaccharides - Common monosaccharides - Monosaccharides reactions and derivatives - Oligosaccharides and polysaccharides	3	6	a1
2	Lipids	- Introduction to lipids - Classification of lipids - Fatty acids structure and properties - Glyceride and non-glyceride lipids - Biomembranes	3	6	a 1. b1
3	Proteins and amino acids	- Introduction to proteins and amino acids - Biological importance of proteins - Amino acids classification, properties, and reactions - Important peptides	3	6	a1, b1

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		• Proteins structure and classifications			
4	Med term Exam		1	2	a1, b1, c1
5	Nucleic acids	• Nucleotides structure and function • DNA structure and properties • RNA structure and properties	2	4	a1, b1, c1
6	Vitamins	• Classification • Functions and metabolism • Vitamins/minerals deficiency and associated disorders	2	4	a1, b1, c1
7	Enzymes	-Introduction, Definition and Classification of enzymes. -Factors affecting enzyme activity -Salient features of active site. -Enzyme Inhibition -Mechanism of Enzyme Action	1	2	a1, b1, c1
8	Final Exam		1	2	a1,b1, c1,d1
	Total		16	36	

B. Practical Aspect (Lab/Clinical) (if any):

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	- NA			
2	-			
Number of Weeks /and Units Per Semester		16	32	

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	NA			
2				
Number of Weeks /and Units Per Semester				

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VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Assignment 1	6th	2.5	a1, b1, c1,d1
2	Assignment 2:	12th	2.5	a1, b1, c1, d1
Total			5	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	6th, 12th	5	5%	a1, b1, c1, d1
2	Quiz 1	6 th	2.5	2.5%	a1, b1, c1, d1
3	Midterm Exam (Theory)	Week 7	20	20%	a1, b1, c1, d1
4	Quiz 2	12 th	2.5	2.5%	a1, b1, c1, d1
5	Final Exam (Theory)	Week 16	70	70%	a1, b1, c1, d1
Total			100	100%	

IX. Learning Resources:

1- Required Textbook(s):

1- Ferrier Denise. Lippincott's illustrated reviews: Biochemistry, 7th edition, Wolters Kluwer. 2017.

2- Essential References.

2 -Rodwell Victor, et al. Harper's Illustrated Biochemistry, 31th edition McGraw-Hill. 2018

3- Electronic Materials and Web Sites etc.

<https://www.ncbi.nlm.nih.gov/pubmed/>

The medical biochemistry page (online textbook) : <https://themedicalbiochemistrypage.org/>

X. Course Policies: (Based on the Uniform Students' By law (2007))

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

Faculty of Clinical Pharmacy

Bachelor of Clinical Pharmacy & Pharm. D.

Course Specification of

Biochemistry 1

Course Code. 03.01.207

I. Information about Faculty Member Responsible for the Course:									
Name of Faculty Member:	Dr. Ebtesam Al- Zabedi			Office Hours					
Location& Telephone No.:									
E-mail:				SAT	SUN	MON	TUE	WED	THU

2022- 2023

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		- Amino acids classification, properties, and reactions - Important peptides - Proteins structure and classifications			
4	Med term Exam		1	2	a1, b1, c1
5	Nucleic acids	- Nucleotides structure and function - DNA structure and properties - RNA structure and properties	2	4	a1, b1, c1
6	Vitamins	- Classification - Functions and metabolism - Vitamins/minerals deficiency and associated disorders	2	4	a1, b1, c1
7	Enzymes	-Introduction, Definition and Classification of enzymes. -Factors affecting enzyme activity -Salient features of active site. -Enzyme Inhibition -Mechanism of Enzyme Action	1	2	a1, b1, c1
8	Final Exam		1	2	a1,b1, c1,d1
	Total		16	36	

B. Practical Aspect (Lab/Clinical) (if any):

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	- NA			
2	-			
Number of Weeks /and Units Per Semester		16	32	

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	NA			

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
2				
Number of Weeks /and Units Per Semester				

VI. Teaching Strategies of the Course:

- Lecture
- Instructor – student Interactive
- Presentation
- Office hours
- Seminar
- Assignment
- Self-Learning
- Case study

VII. Assessment Methods of the Course:

- Assignments
- Case study
- Exam
- Oral Presentation

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Assignment 1	6th	2.5	a1, b1, c1,d1
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Total			5	

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