هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	**Biochemistry**
Course Code:	**PHE26327**
Program:	**Bachelor of Sciences in Public Health**
Department:	**Public Health**
College:	**Applied Medical Sciences**
Institution:	**University of Bisha**
Version:	**1**
Last Revision Date:	**2**-8-2023

وزارة التعليم - جامعة بيشة
Ministry Of Education - University Of Bisha
وكالة الجامعة للشؤون التعليمية

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:					
3 (2+1)					
2. Course type					
A.	☐University	☐ College	☒ Department	☐Track	☐Others
B.	☒ Required		☐ Elective		
3. Level/year at which this course is offered: 6th level 3rd year					
4. Course general Description:					
During this course the student will study the chemistry and metabolism of major food staffs (Carbohydrates, Lipids, Proteins, Vitamins, and minerals). The main action of enzymes and hormones and their role in intermediary metabolism will be taught.					
5. Pre-requirements for this course (if any)**:**					
NA					
6. Co-requirements for this course (if any)**:**					
NA					
7. Course Main Objective(s):					
• **Relate the chemistry of major food staffs to their metabolism.** • **Explain the different regulatory mechanisms of different metabolic pathways.**					

2. Teaching mode

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	24	40%
2	E-learning	2	3.3%
3	Tutorial	2	7%
4	Interactive learning	4	6.7%
5	Practical	30	50%

3. Contact Hours

No	Activity	Contact Hours
1.	Lectures	24
2.	E-learning	2

3.	Practical	30
4.	Interactive learning	4
5.	Seminars	
6.	Self-Learning	52.5
Total		**112,5**

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Outline the biochemical basis for Carbohydrates, Lipids, Proteins, enzymes, hormones, Vitamins and minerals.	K1	Lecture	Written exam Assignments, E-learning assessments, and oral exams
1.2	Explain the metabolic pathways for Carbohydrates, Lipids, Proteins, Vitamins, and minerals.	K2		
1.3	Relate the metabolic pathways disorders to clinical aspects.	K3		
2.0	**Skills**			
2.1	Determine glucose, different lipids, and proteins in serum samples.	S1	Practical	Practical exam
2.2	Determine blood enzymes levels and their relations to clinical aspects.	S2		
3.0	**Values, autonomy, and responsibility**			
3.1	Work in a team in class rooms and in the lab.	V1	Practical and discussions	In-class evaluation
3.2	Update knowledge and information related the course subjects.	V2		

C. Course Content

No	List of Topics (Theory)	Contact Hours
1.	Biomolecules (carbohydrates and lipids) structure and functions	2
2.	Biomolecules (proteins and enzymes) structure and functions	2
3.	Hormones chemistry	2
4.	Minerals chemistry and metabolism	2
5.	Vitamins chemistry	2

6.	Bioenergetics and biological oxidation	2
7.	Carbohydrates metabolism (digestion and absorption)	2
8.	Carbohydrates metabolism (catabolic and anabolic pathways)	2
9.	Carbohydrates metabolism (glycogen metabolism)	2
10.	Lipids metabolism (digestion and absorption)	2
11.	Lipids metabolism (lipogenesis and lipolysis)	2
12.	Carbohydrates and lipids metabolism disorders	2
13.	Proteins metabolism (digestion and absorption)	2
14.	Proteins metabolism (catabolic pathways of amino acids)	2
15.	Proteins metabolism (conversion of amino acids to specialized products)	2
Total		**30**

No	List of Topics (Practical)	Contact Hours
1.	Spectrophotometry (principles and applications)	2
2.	Determinization of blood glucose levels in blood samples	2
3.	Determination and interpretation of oral glucose tolerance test	2
4.	Determination of total lipids levels in blood samples	2
5.	Determination of total cholesterol levels in blood samples	2
6.	Determination of triglycerides levels in blood samples	2
7.	Determination of total proteins levels in blood samples	2
8.	Determination and Albumin in levels blood samples	2
9.	Calculation and interpretation on A/G ratio	2
10.	Determination and interpretation of ALT levels in blood samples	2
11.	Determination and interpretation of AST levels in blood samples	2
12.	Determination and interpretation of LDH levels in blood samples	2
13.	Determination and interpretation of CPK levels in blood samples	2
14.	Determination of calcium levels in blood samples	2
15.	Determination of iron levels in blood samples	2
Total		**30**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	All through	5%
2.	E-learning assessments	All through	15%
3.	Midterm exam (theoretical practical)	8th	20%
4.	Oral exam	7th	10%
5.	Final exam (theory)	End of Semester	30%
6.	Final exam (practical)	End of Semester	20%
	Total		**100%**

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	1. Denise R. Ferrier. **Lippincott's illustrated reviews: Biochemistry.** 6th edition. **2014**. Wolters Kluwer/ Lippincott Williams & Wilkins.
Supportive References	2. Denise R. Ferrier. **Lippincott's illustrated reviews: Biochemistry.** 6th edition. **2014**. Wolters Kluwer/ Lippincott Williams & Wilkins. 3. Michael A. Lieberman, Rick Ricer**. Lippincott's illustrated Q&A review of biochemistry. 2015**. Philadelphia: Lippincott Williams & Wilkins. 4. Gupta, R C. **Essentials of medical biochemistry**.**2013** New Delhi : CBS publishers& disterbutaion. 5. Voet, Voet, Pratt. **Principle of Biochemistry.** 4th edition. **2010**. John wiley&sons, Inc. Wilcocks and Paul Yates. 1st edition.
Electronic Materials	1. (http://themedicalbiochemistrypage.org/). 2. Aldrin's Favorite Biochemistry Sites (http://aldrin.tripod.com/biochemistry). 3. Harvard on line learning (http://online-learning.harvard.edu/course/principles-biochemistry). 4. KEGG pathway Database (http://www.genome.jp/kegg/pathway.html). 5. Biochemistry for medics (http://www.namrata.co/). 6. Social Media and Blackboard
Other Learning Materials	1. Saudi digital library

2. Required Facilities and equipment

Items	Resources
facilities	• Middle size classroom
Technology equipment	1. Multimedia projector • Smart board
Other equipment	• NA

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, Faculty, Quality committee	Direct / indirect - Using well-structured questionnaire
Effectiveness of student's assessment	Faculty members Peer Reviewer	Direct / indirect - Continuous reviewing and course portfolio
Quality of learning resources	Faculty members Curriculum committee	Direct / indirect - Annual review course report

Assessment Areas/Issues	Assessor	Assessment Methods
The extent to which CLOs have been achieved	Course coordinator	Direct / indirect

G. Specification Approval

COUNCIL /COMMITTEE	**PH DEPARTMENT BOARD**
REFERENCE NO.	
DATE