هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	Biomedical Sciences (2)
Course Code:	MDS26113
Program:	Health track
Department:	Basic Medical Sciences
College:	Applied Medical Sciences
Institution:	University of Bisha
Version:	7
Last Revision Date:	24 August 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: 4 (3+1)					
2. Course type					
A.	☐University	☒ College	☐Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (2nd level / 1st year)					
4. Course general Description:					
This is a four credit hours course which will be conducted during the second semester of year one. The course is about the basic concepts of chemistry, biochemistry and biophysics which will be delivered as lectures, seminars and practical.					
5. Pre-requirements for this course (if any)**:**					
NA					
6. Pre-requirements for this course (if any)**:**					
NA					
7. Course Main Objective(s):					
This course was designed to introduce first-year students to the concepts of chemistry, biochemistry and biophysics.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	41	55%
2	E-learning	4	5%
3	Hybrid • Traditional classroom • E-learning		
4	Practical	30	40%
5	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	41
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify) E-learning**	4
6.	**Self-learning**	75
Total		150

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	Describe the basic concepts of inorganic and organic chemistry.	K2	Lecture, Assignment (E-learning)	Assignment, Quiz's, Written exam
1.2	Relate the structure of biochemical molecules to their functions.	K2		
1.3	Explain the fundamental concepts of physics and biophysics.	K2		
2.0	**Skills**			
2.1	Perform the laboratory physical and chemical examinations for chemical solutions.	S1	Lab demonstration	Practical exam
2.2	Demonstrate skills to evaluate physical data of substance.	S2		
2.3	Manipulate the laboratory sets and apparatus.	S2		
3.0	**Values, autonomy, and responsibility**			
3.1	Display high level of commitment to obtain the correct analytical results.	V1	Practical	In lab evaluation
3.2	Work in a team in the classrooms and labs.	V3		

C. Course Content

No	List of Topics **Theory**	Contact Hours
	A. **Chemistry**	
1	**Introduction to chemistry, molecules and molecular formula** (Role of chemistry in medicine, the International system of units, matter, elements-compounds and mixtures, structure of atoms-ions and isotopes, chemical formula and naming of chemical compounds).	4
2	**Chemical bonding and chemical reactions** (chemical bonds such as hydrogen, ionic, covalent, Vander Waals bonds, atomic mass, chemical reaction, chemical kinetics)	4
3	**Solubility and solutions** (solute-solutions and solvents, factors affecting solubility, types of solutions, concentration of solutions and osmotic and hydrostatic pressure).	4
4	**Overview of periodic table and organic chemistry** (features of periodic table, periodic properties of elements, aliphatic and aromatic organic compounds).	4
	B. Biochemistry part	
5	**Chemistry of water, acids, bases and buffers** (structure, functions, properties of water, acids and bases, pH and its applications in medical field, biological buffers and their mechanism of action, acid base disturbances).	5
6	**Molecules of life** (structure-functions-classification of carbohydrates, lipids, amino acids, peptides and proteins, nucleoproteins-nucleic acids structure and functions, enzymes structure, properties and classifications).	8
	C. Biophysics part	
7	**Sound and hearing** (sound waves in media, pitch and loudness, the human ear).	4
8	**Pressure** (pressure, density, Pascal′s principles and pressure and human body).	4
9	**Fluids dynamics** (terminology, the equation of continuity, Bernoulli′s equation and viscosity). **Temperature** (thermal equilibrium, measuring temperature, breathing).	4
10	**Electricity** (coulomb′s law, the electrical field, electrical potentials, human heart and ECG). **Eye and vision** (lenses, parts of human eye, emmetropia, myopia, hypermetropia)	4
	Total theory Practical	45
1	Lab safety and safety measurements	3
2	Find the chemical formula of Magnesium Oxide (MgO)	3
3	Identification of unknown salt	3
4	Identification of unknown alcohol	3
5	Identification of unknown organic acids	3
6	General view for biochemistry lab and lab utensils	3
7	Physical and chemical examination of mono saccharides **,disaccharides and polysaccharides**	3

8	General scheme for identification of unknown carbohydrates	3
9	Speed of sound (resonance tube) **Measurement of viscosity of transparent Newtonian liquids**	3
10	Finding the focal length and power of diverging lens , Ohm's law	3
Total practical		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments and E-Learning activities	All through	10 %
2.	Midterm exam	8th	20 %
4.	Final practical exam	End of semester	20%
5.	Final theory exam	End of semester	50%
TOTAL			100%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	1. Chemistry for preparatory year students. Abdullah, prof. Shaeel Al-Thabaiti, Dr. Mohamed Mukhtar, Dar Khawarizm for academic publishing and disterbutation, 2015. King Fahad National library Cataloging in publication data. ISBN: 978-603 8122-92-1. 2. Lippincott's illustrate Biochemistery. 2017. Denis R. Ferrier. 7th Ed. WoltersKluwer 3. Introduction to Biological physics for health and life sciences. 2010. Kirsten Franklin Paul Muir, Terry Scott, Lara Wilcocks and Paul Yates. 1st edition
Supportive References	-
Electronic Materials	1. KEGG pathway Database (http://www.genome.jp/kegg/pathway.html). 2. Biochemistry for medics (http://www.namrata.co/). 3. Enzyme.expasy.org 4. Social Media, Blackboard.
Other Learning Materials	Black board Saudi electronic library

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1. 2 Class rooms 30 students each 2. Small group discussion rooms 5 3. DR (anatomy) 4. Museum (anatomy) **5.** Physiology lab
Technology equipment (projector, smart board, software)	1. Smart board 2. Audiovisual aids 3. High speed internet **4.** Blackboard
Other equipment (depending on the nature of the specialty)	1. Test tubes and test tube racks, 2. reagent bottles, 3. conical flask, 4. beakers, 5. pasture pipettes, 6. graduated pipettes, 7. flamer, 8. photometers, **9.** chemical reagents.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, Faculty staff members, Program Leaders, Peer Reviewers	Direct / Indirect
Effectiveness of Students assessment	Faculty staff members, Program Leaders, Peer Reviewers	Direct / Indirect
Quality of learning resources	Students, Faculty, Program Leaders, Peer Reviewer.	Direct / Indirect
The extent to which CLOs have been achieved	Faculty and program quality unit, Program Leaders, Peer Reviewer.	Direct / Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**DEPARTMENT COUNCIL**
REFERENCE NO.	**1/1444-1445**
DATE	**5-2-1445**

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