

Course Specification Student Version

Course Title:	Biochemistry 1
Course Code:	BCH 261
Department:	Basic Medical Sciences
Program:	Bachelor of Dentistry
College:	Vision College in Riyadh
Institution:	Vision College in Riyadh
Revised:	June 2025

A. Course Identification

1. Credit hours: 2 (1+1+0)
2. Level/year at which this course is offered: Level 3/Year 2
3. Pre-requisites for this course (if any): None
4. Co-requisites for this course (if any): None

B. Teaching Methods

1	Lecture
2	Practical
3	Seminar

C. Course Description and Objectives

This course is designed to give the students basic cognitive knowledge of the:

- Principals of biochemistry focusing on carbohydrates, proteins, fats. It also deals briefly with biological compounds and their metabolism and major aspects of enzymology.
- Relationship between biochemical molecules and states of health and disease.

2. Main course Objective

This course aims to enhance the study of general and basic biochemistry for dental students, covering the structural and functional characteristics of the proteins, carbohydrates, and lipids.

3. Course Objectives

By the end of this course, students should be able to:

- Describe the basic chemistry and major metabolic pathways of proteins and amino acids.
- Explain the central dogma of molecular biology with special reference to genetic code and protein biosynthesis.
- Recognize the main structure and function of enzymes and explain the role of enzymes and isoenzymes in the clinical diagnosis of diseases.
- Describe the basic chemistry and major metabolic pathways of carbohydrates particularly glucose.
- Recognize the central role of electron transport chain in the formation of cellular energy in the living systems.
- Describe the basic chemistry and major metabolic pathways of lipids.

- Understand the effects of inborn errors of metabolism and other diseased states resulting from molecular imbalances.
- Explain hormonal integration in the metabolism of the food stuff.

D. Course Content

No	List of Topics
1	Amino acids
2	Chemistry of proteins
3	Catabolism of proteins
4	Amino acid metabolism and Urea cycle
5	Genetic code and Protein biosynthesis
6	Enzyme, Coenzyme and cofactor
7	Clinical enzymology
8	Carbohydrates metabolism I
9	Major metabolic pathways of glucose
10	Carbohydrate metabolism II [Glycogen metabolism]
11	TCA cycle and oxidative phosphorylation
12	Lipids and fatty acids
13	Metabolism of lipids and steroids
14	Integration of Major Metabolic Pathways-Stages of oxidation of food stuffs

E. Assessment Tools

#	Assessment task	Percentage of Total Assessment Score
1	Quizzes	10%
2	Assignments	10%
3	Midterm Exam	20%
4	Practical Exam	20%
5	Final Exam	40%
	Total	100%

F. Learning Resources

Essential References	DM Vasudevan, Sreekumari S and KannanVaidyanathan, Textbook of biochemistry for dental students, 2nd Edition 2011.
Supportive References	a. Champe, P. C., Harvey, R. A. and Ferrier, D. R., 2005. Biochemistry “Lippincott’s Illustrated Reviews”, 3 rd Edition. b. Shivananda Nayak B, (2013). Essentials of Biochemistry for Medical Students.
Electronic Materials	WWW.jaypeebrothers.com , WWW.jaypeedigital.com
Other Learning Materials	None