Course Specification
Student Version

Course Title:	Biochemistry and Nutrition
Course Code:	BAN 203
Department:	Basic Medical Sciences
Program:	Bachelor of Medicine and Surgery
College:	Vision College in Riyadh
Institution:	Vision College in Riyadh
Revised:	July 2025

A. Course Identification

1. Credit hours: 4 (3+1+0)
2. Level/year at which this course is offered: Level 3/Year 2
3. Pre-requisites for this course (if any): PHYS 101, CHEM 101, BIOL 101 and ENGL 105
4. Co-requisites for this course (if any): None

B. Teaching Methods

1	Lecture
2	Practical Session
3	Seminar

C. Course Description and Objectives

1. Course Description

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

- Concepts of biochemistry covering structural and functional characteristics of the basic nutrients, enzymes and hormones.
- Structure and properties of bio-molecules, such as amino acids, protein, carbohydrates and lipids.
- Relationship between protein structure and its biological function, generation and storage of metabolic energy, main metabolic pathways and their key steps.
- Role of phospholipids in determining the properties of biological membranes and their function.
- Principles of nutrition.
- Major functions of the vitamins and minerals.

2. Course Main Objective

This course aims to develop an in-depth understanding of the metabolic regulation of proteins, carbohydrates and lipids in the living cell; explaining the major principles of nutrition and the main function of both vitamins and mineral.

3. Course Objectives

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

- Differentiate between de-novo synthesis, salvage and catabolism of both purine and pyrimidine nucleotides.
- Differentiate between the signal transduction of different hormones.
- Recognize the role of competitive inhibition in the action of statin drugs and antibiotics.
- Discuss the role of enzyme in clinical diagnosis of diseases.
- Explain electron transport chain and the action of uncouplers.
- Explain normality and abnormality in digestion, absorption and transport of proteins, carbohydrates and lipids.
- Describe the common metabolic pathways for proteins, carbohydrates and lipids.
- Discuss the integration of metabolism by insulin and glucagon hormones.
- Explains the main principles of nutrition.

- Understand the types of therapeutic diet and its objectives.
- Understand the prescribed diet for each disease.
- Explain function of each vitamin.
- Discuss diseases resulted from deficiency of each vitamin.
- Explain toxicity symptoms for some vitamins.
- Explain function and deficiency symptoms of some minerals.

D. Course Content

No	List of Topics
1	Introduction to the course
2	Nucleotides Metabolism
3	Enzymes- Bioenergetics-Hormones and signal transduction
4	Chemistry and Metabolism of Proteins
5	Chemistry and Metabolism of Carbohydrates
6	Chemistry and Metabolism of Lipids
7	Principles of Nutrition
8	Metabolism and Function of Some Minerals
9	Metabolism and Function of Vitamins

E. Assessment Tools

#	Assessment task	Percentage of Total Assessment Score
1	Seminar Evaluation Using Rubrics	10%
2	Quizzes	10%
3	Midterm Exam	20%
4	Final Practical Exam	20%
5	Final Written Exam	40%
	Total	**100%**

F. Learning Resources

Essential References	Champe, P. C., Harvey, R. A. and Ferrier, D. R., 2005. Biochemistry "Lippincott's Illustrated Reviews", 5th or 6th Edition.
Supportive References	Vasudevan, D. M., Sreekumari, S., and Kannan, V.., 2011. Textbook of biochemistry for medical students, 6th Edition.
Electronic Materials	https://drive.google.com/drive/folders/1-oSF6IzA9V2L9WOJjGuzwL1Jpa2w4IJV?usp=sharing
Other Learning Materials	None