



### Course Syllabus of Nutrition and nutritional chemistry

**Faculty :** Medicine and health sciences

**Department:** Basic Sciences

**Program :** Bachelor of Medicine and Surgery

I. General information about the course instructor :							
<b>Name</b>	Dr Abdulhabib radman alqubaty	<b>Office Hours(3 Hours Weekly )</b>					
<b>Location &amp; phone number</b>	714075752	Sat	Sun	Mon	Tue	Wed	Thu
<b>Email</b>	Alqubaty 71@gmail.com						

II. General information about the course:							
1.	<b>Course Title:</b>	Nutrition and nutritional chemistry					
2.	<b>Course Code and Number :</b>	BMD10					
3.	<b>Credit Hours :</b>	<b>Lecture</b>	<b>Seminar/Tutorial</b>	<b>Practical</b>	<b>Training</b>	<b>Clinical</b>	<b>Total</b>
		3	-	1		-	4
4.	<b>Study Level and Semester:</b>	2nd year/ 1st semester					
5.	<b>Pre-requisites</b>	Introduction of biochemistry					
6.	<b>Co-requisites</b>	None					
7.	<b>Program in which the course is offered</b>	Bachelor of Medicine and Surgery					
8.	<b>Teaching Language:</b>	English					
9.	<b>Instruction location:</b>	University of Science and Technology, Sana'a					

III. Course Description
<p>This course provides students with basic knowledge about metabolic pathways and their key steps. It also help student understand generation and storage of metabolic energy. This course also acquaint medical students with some basic biochemical lab techniques, help them to perform some independent lab work and learn to cooperate with their colleagues in a laboratory environment. In the laboratory sessions, students are expected to learn how to use the centrifuge and spectrophotometer. Protein concentration, glucose and cholesterol level in the plasma will be determined using spectrophotometer</p>

#### IV. Course Aims:

1. To enable the student to illustrate and/or describe the metabolic pathways of macronutrients and nucleotides.
2. To enable the students to point-out hereditary and acquired metabolic disturbances and their biochemical laboratory and clinical outcomes.
3. To enable the student to point out the bioenergetics of the concerned metabolic pathways under different physiological circumstances and their integrator regulations with other working metabolic pathways.
4. To enable the student to interpret medical laboratory reports.

#### V. Course Intended Learning Outcomes (CILOs) :

**After completing this course, students would be able to:**

1. Define the metabolic pathways of carbohydrates, lipids, proteins, nucleotides and their micro-molecules and determine the site of each.
2. Illustrate the steps and regulatory mechanisms of the metabolic pathways
3. Point out the related metabolic disorders and their clinical prints on biochemical and molecular basis.
4. Calculate the bioenergetics of the concerned metabolic pathways under different physiological circumstances
5. Concludes the clinical significance of determination of plasma levels of glucose, total proteins, albumin, cholesterol, creatinine and uric acid and some enzymes.
6. Recognize the etiology of metabolic disturbance in a given case study report.
7. Measure serum glucose, total proteins, albumin, cholesterol, creatinine and uric acid by colorimetric methods.
8. The student is able to work effectively in a group in lab or during preparation of seminars.

VI. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs				
Topics/Units of Course Contents				
First: Theoretical Aspects				
No.	Course Topics/Units	Sub-topics	No. of lectures	Contact Hours
1	Metabolism of carbohydrate	1. Glycolysis 2. Gluconeogenesis 3. Krebs cycle 4. Glycogenesis 5. Glycogenolysis 6. Metabolism of Galactose and fructose 7. Pentose phosphate pathway	8	15
2	Metabolism of Lipids	1. Biosynthesis of fatty acids 2. Biosynthesis of triacylglycerols 3. Lipolysis 4. Oxidation of fatty acids 5. Ketone bodies formation and oxidation 6. Biosynthesis of cholesterol	5	10
3	Metabolism of amino acid	1. Transamination reaction 2. Urea cycle 3. Glucose- alanine cycle 4. Biosynthesis of non-essential amino acids 5. Catabolism of carbon skeleton of amino acids 6. Disorders in amino acid metabolism	5	10
4	Nucleic acid metabolism	1. Biosynthesis of purine nucleotides 2. Biosynthesis of pyrimidines nucleotides 3. Catabolism of Purina and pyrimidines	5	10
<b>Total</b>			<b>23</b>	<b>45=3 CH</b>

Second: Practical/Tutorial/Clinical Aspects			
No.	Practical/Tutorial/Clinical topics	No. of labs	Contact Hours
1	Instruments in biochemistry lab& lab safety	3	6
2	Estimation of blood glucose	2	4
3	Estimation of cholesterol	2	4
4	Estimation of triglyceride	2	4
5	Estimation of total protein	2	4
6	Estimation of total albumin	2	4
7	Estimation of uric acid	2	4
<b>Total</b>		<b>15</b>	<b>30</b>