



## Course Syllabus of Nutritional Biochemistry

**Faculty:** Medicine and health sciences

**Department:** Health Sciences

**Program:** Bachelor in Clinical Nutrition and Dietetic

I. General information about the course instructor:							
Name	Dr. Abdulhabib Alqubaty	Office Hours(3 Hours Weekly )					
Location & phone number	Sana'a: 770145433	Sat	Sun	Mon	Tue	Wed	Thu
Email	Alqubaty71@gmail.com			√			

II. General information about the course:					
1. Course Title :	Nutritional Biochemistry				
2. Course Code and Number :	BND231				
3. Credit Hours :	Credit Hours				Total
	Theoretical	Seminar/Tutorial	Practical	Training	
	2	-	1	-	3
4. Study Level and Semester:	2 <sup>nd</sup> year /1 <sup>st</sup> semester				
5. Pre-requisites :	BND121				
6. Co-requisites :	None				
7. Program in which the course is offered:	Bachelor in Clinical Nutrition and Dietetic				
8. Teaching Language:	English				
9. Instruction location:	University of Science and Technology, Sana'a ,Yemen				

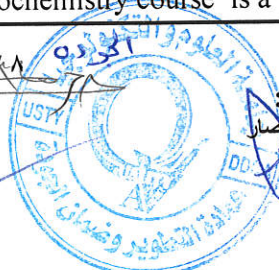
III. Course Description
<p>This course provides clinical nutrition students with basic knowledge about metabolic pathways and their key steps and regulation points. It help student to understand the generation and storage of metabolic energy. This course also acquaints clinical nutrition students with some basic biochemical lab techniques to help them to perform some independent lab work and learn them 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. This course is based on lectures, lab sessions, seminars and group discussion.. Introduction to Biochemistry course is a prerequisite course.</p>

عميد الكلية:  
د. عبد الله المخلافي

رئيس القسم:  
د. عبد الحبيب ردمان

المراجع:  
د. مجاهد نصار

الموصف:  
د. عبد الحبيب ردمان

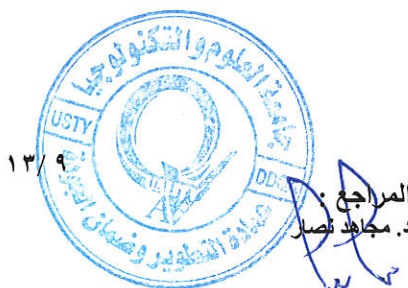


**IV. Course Aims:** This course is aimed to:

1. Learn the students to understand the metabolic pathways of macronutrients and nucleotides.
2. Enable the student to point-out hereditary and acquired metabolic disturbances and their biochemical laboratory and clinical outcomes.
3. Enable the student to indicate the bioenergetics of the respective metabolic pathways under different physiological conditions and their complementarity systems with other functional metabolic pathways.
4. Improve the student's skills in conducting some biochemical tests to estimate the levels of serum glucose, total proteins, albumin, cholesterol, creatinine and uric acid by colorimetric methods.
5. Teach students the ability to interpret medical laboratory reports.

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

1. Mention the function (medical importance) of metabolic pathways .
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. Analyze the clinical significance of determination of plasma levels of glucose, total proteins, albumin, cholesterol, creatinine and uric acid and some enzymes.
5. Estimate serum levels of glucose, total proteins, albumin, cholesterol, creatinine and uric acid by colorimetric methods.
6. Calculate the bioenergetics of the concerned metabolic pathways under different physiological circumstances.
7. Work effectively in a group in lab or during preparation of seminars.



الموصف :  
د. عبد الحبيب ردمان



## VI. Course Contents

### First: Theoretical Aspects

No.	Course Topics/Units	Sub-topics	Weeks due	Contact Hours
1	Metabolism of carbohydrate	Digestion and absorption of carbohydrate Glycolysis Krebs cycle Gluconeogenesis Glycogen metabolism Metabolism of Galactose, fructose and glucouronic acid pathway Pentose phosphate pathway Regulation of blood glucose and DM	1 <sup>st</sup> -5 <sup>th</sup>	10
2	Med exam		6 <sup>th</sup>	2
3	Metabolism of Lipids	Digestion and absorption of lipids Biosynthesis of fatty acids Biosynthesis of triacylglycerols Lipolysis Oxidation of fatty acids Ketone bodies formation and oxidation Biosynthesis of cholesterol Lipoprotein metabolism & relation to cardiovascular diseases	7 <sup>th</sup> -10 <sup>th</sup>	8
4	Amino acid metabolism and tumor markers	Digestion and absorption of protein Glucose- alanine cycle and Transamination reaction Urea cycle Biosynthesis of non-essential amino acids Catabolism of carbon skeleton of amino acids Disorders in amino acid metabolism	11 <sup>th</sup> -13 <sup>th</sup>	6
5	Nucleic acid metabolism	Digestion and absorption of nucleic acids Metabolism of purine and pyrimidines nucleotides Catabolism of Purina and pyrimidines and its disorders Recombinant DNA technology	14 <sup>th</sup>	2
6	Clinical Chemistry	Liver and kidney function (in brief) Tumor markers and their clinical application	15 <sup>th</sup>	2
7	Final exam		16 <sup>th</sup>	2
<b>Total number of weeks and hours</b>			<b>16</b>	<b>32</b>



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Second: Practical/Tutorial/Clinical Aspects			
No	Practical/Tutorial/Clinical topics	Weeks due	Contact Hours
1	Instruments in biochemistry lab& lab safety	2 <sup>nd</sup>	2
2	Estimation of blood glucose	3 <sup>rd</sup>	2
3	Estimation of serum cholesterol	4 <sup>th</sup>	2
4	Estimation of serum triglyceride	5 <sup>th</sup>	2
5	Estimation of total plasma protein	6 <sup>th</sup>	2
6	Estimation of total serum albumin	7 <sup>th</sup>	2
7	Estimation of serum uric acid	8 <sup>th</sup>	2
8	Estimation of serum urea	9 <sup>th</sup>	2
9	Estimation of serum creatinine	10 <sup>th</sup>	2
10	Liver function tests	11 <sup>th</sup> ,12 <sup>th</sup>	4
11	Final practical exam	13 <sup>th</sup>	2
Total number of weeks and hours		14	24

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