

## Course Specification

### Biochemistry (B)

Proteins , Protein biosynthesis, Biological fluids and Hormones .

**Benha University**

**Faculty of Veterinary Medicine**

Program on which the course is given: **Bachelor of Veterinary Medical Science**

Department offering the course: **Department of Biochemistry**

Academic year / Level : **2<sup>nd</sup> Year**

**Date of specification approval: Ministerial Decree No 921, on 15/9/1987.**

**( Then approved in this recent template by department council on 23/2/2006)**

### A- Basic Information

**Title: Biochemistry**                      **Code: Vet 00624 b**

**Lecture: 2 hours**

**Practical: 4 hours**                      **Total: 6 hours**

### B- Professional Information

#### 1 – Overall Aims of Course:

The aim of the course is to provide the students with a basic education in the Metabolism of Proteins , Protein biosynthesis, Biological fluids and Hormones .

#### 2 – Intended Learning Outcomes of Course (ILOs)

##### a-Knowledge and Understanding:

- a1- Realize knowledge about the nitrogen balance .
- a2- Understand the role of protein in growth
- a3- Illustrate the Anabolism and catabolism of proteins .
- a4- Recognize the role of biological fluids in persistence of life
- a5- summarize hormones chemistry and biological functions

##### b-Intellectual Skills

- b1- Able to know what about the nitrogen balance and growth
- b2- Determine the relations between the metabolism and diseases
- b3- Analyze the changes between the microbial and metabolic diseases

##### c-Professional and Practical Skills

- c1- Explain know how the growth occurred .
- c2- Show differentiations between the normal and abnormal metabolic pathways .
- c3- Read knowledge about the normal homeostasis of the cellular functions .
- c4- Demonstrate the relation between obesity and disturbances in body fluids

##### d-General and Transferable Skills

- d1- Able to be a successful member chemists .
- d2- Presentation of a scientific study in medical laboratories .
- d3- Scientific chemists terms.
- D4- Problem solving skills .

### 3- Contents

Topic	No. of hours	Lecture	Practical
Blood nitrogen balance	1	1	-
Essential and nonessential amino acids	10	2	8
Catabolism of amino acids	7	1	6
Urea formation	10	2	8
Protein metabolism and kidney functions	2	2	-
Metabolic disturbances of amino acids	2	2	-
Protein biosynthesis	10	2	8
Formation and metabolism of Purines	7	1	6
Formation and metabolism of Pyrimidins	5	1	4
Classification of hormones	2	2	-
Metabolism of steroid hormones	2	2	-
Metabolism of protein hormones	8	2	6
Role of hormones in metabolism	2	2	-
Chemical compositions of urine	8	2	6
Abnormal urine	6	2	4
Chemistry of milk	6	2	4
Chemistry of blood, CSF, Lymph, Synovial, Pleural, pericardial and s	2	2	-
<b>Total</b>	<b>90</b>	<b>30</b>	<b>60</b>

#### 4- content-ILOs matrix

	Content	ILOs			
		Knowledge and understanding	Intellectual	Professional and practical	General and transferable
1.	Blood nitrogen balance	a4,	b1, b2,b3	c1, c2 , c3	d1, d2,
2.	Essential and nonessential amino acids	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3,d4,
3.	Catabolism of amino acids	a1, a2, a3,	b1, b2,b3	c1, c2 , c3	d1, d2, d3,d4,
4.	Urea formation	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3,d4
5.	Protein metabolism and kidney functions	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4
6.	Metabolic disturbances of amino acids	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4
7.	Protein biosynthesis	a1, a2, a3,	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4,
8.	Formation and metabolism of Purines	a1, a2, a3,	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4
9.	Formation and metabolism of Pyrimidins	a1, a2, a3,	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4

10.	Classification of hormones	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4
11.	Metabolism of steroid hormones	a1, a2, a3,	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4
12.	Metabolism of proteious hormones	a1, a6	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4,
13.	Role of hormones in metabolism	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4,
14.	Chemical compositions of urine	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4,
15.	Abnormal urine	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4
16.	Chemistry of milk	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4
17.	Chemistry of blood, CSF, Lymph , Synovia Pleural, pericardial and	a1, a2, a3	b1, b2,b3	c1, c2 , c3	d1, d2, d3, d4,

### 5- Assessment-ILOS matrix

Assessment	ILOs			
	Knowledge and understanding	Intellectual	Professional and practical	General and transferable
Mid – Term exam	a2, a3, a4	b1, b2		
Practical exam	a1	b1, b2,b3,	c1, c2 , c3	
Oral exam	a1, a2, a3	b1, b2,b3		
Final term exam	a2, a3, a4,	b1, b2,b3,	c1, c2 , c3	
Assignments and research	a4	b1		d1, d2, d3,d4,

### 6– Teaching and Learning Methods

Lectures and lab sessions in which one or more of the following facilities are used:

- 4.1- Blackboards and chocks
- 4.2- Whiteboards and markers
- 4.3- Over head projector transparent sheets
- 4.4- Demonstration of chemical reactions .

### - Student Assessment Methods

- 5.1 Practical exam to assess professional and practical skills.
- 5.2 Oral exam to assess knowledge and information and intellectual skills.
- 5.3 Written exam to assess knowledge, information and intellectual skills.
- 5.4 Quiz and semester work (demonstration for some tests) to assess understanding, practical and transferable skills.

### Assessment Schedule

Assessment 1    Practical Examination    Week 13

Assessment 2	Oral Examination.	Week	15
Assessment 3	Written Examination	Week	15
Assessment 4	Quiz Examination	Week	6
Assessment 5	Semester Work	Week	13

### **Weighting of Assessments**

50 %	Written Examination	
20 %	Oral Examination.	
20 %	Practical Examination	
5 %	Semester Work	
5 %	Quiz Examination	
100%		Total

## **7- List of References**

### **7.1- Course Notes**

A concise guide of Metabolism

### **7.2- Essential Books (Text Books)**

*Devlin, T.M.(1993):* Textbook of Biochemistry: With Clinical Correlation. 3rd ed. (4th printing). Wiley-Liss: A John Wiley & Sons, Inc., Publication: New York,

*Murray, R.K.; Granner, D.K.; Mayes, P.A. and Rodwell, V.W. (1996):* Harper's of Biochemistry. 24th ed. Appleton & Lange. Norwalk, Connecticut, Loss Atlos, California.

*Zilva, M.; Charles, F. and Myne, N. (1993):* Clinical Chemistry in Diagnosis and Treatment. 6th ed. Saunders, Philadelphia, U.S.A.

### **7.3- Recommended Books**

*Bakry, M.A. (1995):* Review of Medical Biochemistry. 3rd ed.

*Khalifa, A. (1997):* Biochemistry for Medical Students. Fac. of Med., Ain Shams Univ.

*Salah, E. (1993):* Medical Biochemistry. 2nd ed. Fac. of Med., Ain Shams Univ.

*Zahrn, M.A. (1994):* Lectures on Medical Biochemistry. Alexandria Univ.

### **7.4- Periodicals, Web Sites, ... etc**

Journal of Biochemistry

American Journal of Biochemical Association.

American Journal of Veterinary Research.

## **8- Facilities Required for Teaching and Learning**

Biochemistry laboratory.	○
Routine Biochemical kit.	○
The Faculty central lab.	○
Computer and internet lab.	○

**Course Coordinator: Prof Dr. Hussien Abd Al-Maksoud**

**Head of Department: Prof Dr. Hussien Abd Al-Maksoud**

**Date: 9-1-2011**