Quality Assurance Unit

Tanta University

Faculty of Medicine

Department of Medical Biochemistry

Course Specifications

Biochemistry first year

2011-2012

Biochemistry First Year Course specifications

University: T anta **Faculty: Medicine** **Department: Biochemistry**

1- Administrative Information

- **Course title: Medical Biochemistry-1……**
- **Code: TMED.01:04**
- **Department offering the course: medical biochemistry department .**
- **Program (s) on which this course is given: M.B.B.Ch**
- **Departments offering the program:**
- **Academic year/ Level : First year of M.B.B.Ch**
- **Semester in which the course is given: 2 semesters**
- **Date of specifications /revision:**
- **Date of approval by departmental/faculty council : 14/9/2011 - 24 / 9 / 2011**
- **Taught hours:**
  - **Lectures : 75 / 30 weeks = 2.5 hours / week**
  - **Tutorial &practical : 60 / 30 weeks = 2 hours / week**
  - **Others: -**
  - **Total : 135 = 4.5 hours / week**

2 – Overall Course Aims

- To gain an overview of Medical Biochemistry specialty e.g., its philosophy, features and methods.
- To help students to become familiar with the biochemical knowledge and skills necessary to understand other related subjects.
- To provide the students with an appropriate exposure to the medical biochemistry discipline which will assist students in understanding biochemical alteration in health and disease
- To provide students with good knowledge about structure and function of carbohydrate, lipids and proteins.

- To provide an explanation of the relationship between the three-dimensional

structure of macromolecules and their biological activities.

- To enable the students to be oriented with structure and biochemical importance of minerals as well as the structure, functions and kinetics of enzymes.
- To enable the students to be oriented with concepts of molecular biology and how this field gave us a new perspective and new technology used in the diagnosis, treatment and new drugs design.

3– Intended learning outcomes (ILOs):

a- knowledge and understanding:

a1-Define the structure and function of carbohydrates, lipids, proteins, nucleotides , enzymes and immunoglobulins.
a2-Illustrate the mode of action and kinetics of enzymes and their role in the diagnosis of diseases.
a3-Define diseases produced by abnormal hemoglobin and their clinical prints on the biochemical and molecular basis.
a4-Describe the importance of trace elements and their biochemical, clinical and laboratory importance.
a5 Describe DMA structure, replication, mutation and repair.
a6 Define the structure of RNA, transcription and protein biosynthesis.

b- Intellectual skills

bl-Interpret symptoms, signs and biochemical laboratory findings of some macro and trace element deficiency disease.
b2-Interpret some plasma proteins electrophoresis
b3- Summarise the clinical significance and some enzymes reactions and kinetics
b4- Point-out the application of molecular biology in basic and clinical sciences

c- Professional &practical skills

c1- Identify laboratory reagents and instruments used in biochemistry laboratory.
c2- Identify the physical and chemical properties of carbohydrates.
c3- Perform chemical tests to study the properties of lipids and fatty acid.
c4-Identify the physical and chemical properties of amino acids and proteins
c5- Estimation of total plasma proteins.
c6- Identify unknown solutions
c7-Explain how molecular biology gave us a new perspective and new technology used in the diagnosis and treatment.

d-General transferable skills

d1 Adopt the principles of lifelong learning

d2- Able to deal with information technology

d.3- Collaborate with his colleagues in a team work inside the lab, as well as solving problems

d-4 Utilize the resources of biomedical information including the available electronic facilities to update his/her knowledge

d-5 Communicate effectively with a group in lab or during preparation of seminars.

4- Topics (Contents of the course)

Topic	No. of hrs.		
	Lectures	Practical/Small groups	Total
Fundamental of Physical chemistry in association with chemical reactions of biomedical importance	7.5	8	15.5
Chemistry of Carbohydrates	10	8	18
Chemistry of Lipids	10	8	18
Chemistry of amino acids & proteins	12.5	8	20.5
Haemoglobin	5	4	9
Enzymes	5	6	11
Minerals and electrolytes	5	5	10
Molecular biology	15	5	20
Immunochemistry	2.5	4	6.5
Genetic engineering	2.5	4	6.5

5-Teaching and learning methods

5.1 Formal Lectures

5.2- Practical classes

5.3- Tutorial classes

6-Teaching plan –

Item	Time schedule	Teaching hours
Lectures	2 times/week; 2.5hour each for weeks	75
Practical classes	One /week; 2 hours each for week	60
Total		135

7-Student Assessment :

a)Methods used

.1 Written examination to assess a1 A1-6 b1-4
.2 Oral examination to assess A1-6 b1-4 c1-6
3 Practical examination to assess practical skills A1-6 b1-4 c1-6 d1-d5

b)- Assessment schedule التوقيت

Assessment	Week
1-Periodical Examination	Quiz 1 : 4th week Quiz 2 : 8th week Quiz 3 : 12th week
2-A Mid-year examination.	February. It includes: one hour written examination composed of MCQs & true false questions.
3- Final examination	The end of the academic year (May- June). It includes: • Written examination: A 3-hour written paper composed of short essay-type questions. • Oral examination: One oral examination station with 2 staff members (15-20 minutes: 4-5 questions). • Practical examination: 2unknown solutions & theoretical question in electrophoresis

c- Weighing of assessments(توزيع الدرجات)

Exam	Marks	% of Total
Mid term examination	22.5	15%
Final term examination	75	50%
Oral examination	30	20%
Practical/laboratory work	15	10%
Periodical examinations	5	3.5 %
Semester work	--	%
Other types of assessment Practical attendance	2.5	1.5 %
Total	150	100%

d) Attendance criteria:

1. Practical attendance
2. Practical books

e) Grading System

Examination	Topic	Description	Marks
Periodical Examinations	Sheet examinations	Short notes	7.5 marks
Midterm exam	written	Short notes	22.5 marks
Final Examination	Written	Short questions	75 marks
	Practical exam	2 unknown solutions& short theoretical question	15 marks
	Oral exam	One setting	30 marks
Total			150 marks

8- List of references

8.1 Course notes

Lectures notes in medical biochemistry for first year medical students by staff members of Department of Medical Biochemistry, Faculty of Medicine, Tanta University, Tanta University Press, 2010

8.2 Text book

- Lippincott's Reviews of Biochemistry, **3rd edition by Champe PC, Harvey RA, Ferrier DR, Lippincott William & Wilkins London, 2007**
- Text book of Biochemistry with Clinical Correlations **5th Ed, Devlin TM Ed.Wiley - Liss New York 2002**
- Harper's Illustrated Biochemistry: **26th Ed by Murray RK, Granner DK, Mayes PA, Rodwell VW, McGraw-Hill companies New York, 2003.**

8.3 Recommended books

1. Lobert Stryer…fundamentals of biochemistry Leininger Biochemistry…
2. Thomas Develin Biochemistry

8.4 Periodicals and web sites

http://www.kumc.edu/biochemistry/resource.html
http://www.medlib.iupui.edu/ref/biochem.htm

Course coordinator

Name--- Prof Dr/ Ayman Wagih

signature……_.Date…….

Head of department

name… Prof Dr/ Thana ElSheikh

signature……..Date…….

(A) Intended learning outcomes of the course

The name of course	Medical Biochemistry 1st Year	University: Tanta |academy Faculty: medicine
Code of course	TMED 01: 04	Department: Medical Biochemistry

Topics of the course	Week Study	Knowledge & Understanding	Intellectual Skills	Professional Skills	General transferable skills
Fundamental of physical chemistry in association With Chemical reactions of biomedical importance	1st week to 3rd week	a1	b1	c2	d1,d2
Chemistry of Carbohydrates	4th week To 7th week	a1	b1	C2,c6	d1,d3,d5
Chemistry of Lipid	8th week To 11th week	a1	b1	C3	D1,d3
Chemistry of amino acid and protein	12th week To 15th week	a1	b1,b2	c1,c4, c6	d1,d3,d5
Hemoglobin	16th week To 18th week	a3	b1,b2	c1	d1,d2,d5
Enzymes	19th week To 21st week	a1,a2	b1,b3	c1	d1,d2,d3
Minerals	22nd week To 23rdweek	a4	b1	c1	d1,d2,d5
Molecular Biology	24th week To 27th week	a1,a5,a6	b1,b4	c1	d1,d2,d3,d5
Immunochemistry	28th week To 29th week	a1	b1,b4	c1	d1,d2,d5
Genetic Engineering	30th week	a7	b4	c1,c7	d2,d5

Course coordinator : Prof Dr/ Ayman Wagih

Head of the department: Prof Dr/ Thanaa ElSheikh