Mansoura University
Faculty of Medicine

CURRICULUM CONTENT & LOGBOOK

Department of Medical Biochemistry

2012 - 2013

For 1st Year Medical Students In Medical Biochemistry

Name: .....

Serial Number: .....

Section Number: .....

Section Day & Time:.....

Teaching Group: ....

Telephone Number: *Home*: .....
Mobile: .....

e-mail Address: .. . .

Home Address: . . . . , ... ,

section Supervisors: .....

2012 /2013

Head of the Department ***Vice Dean for Education &Student Affairs***

Preface

Dear student

Welcome to department of medical biochemistry at the beginning of your 1st year of medical education, Workers in health science - particularly physician- have two major concern: understanding and maintenance of life and understanding and effective treatment of disease. Biochemistry impacts enormously on both of these fundamental concerns of medicine. Our mission is to enhance your understanding of all the chemical process associated with living cells in both health and disease.

This Log Book was specially provided for you to record all the activities performed during practical classes , it is the formal way for faculty to know and evaluate the student's attitude, achievement and progress and as a document for your attendance. Therefore, overall usage of the book is important to be completed by each student.

Lastly I wish you a fruitful & enjoyable study of medical biochemistry during this year.

Curriculum Contents &Assessment

Intended learning outcomes:

- **Knowledge :**

By the end of the course ,student should be able to

1- Understand different concepts of physical chemistry.
2- Describe structure& properties of carbohydrates,lipid and proteins of biological Importance.
3- Gain knowledge about vitamins and their roles in body metabolism.
4- Understand enzyme chemistry, action and regulation.
5- Demonstrate the structure and importance of immunoglobulins.
6- Describe the chemistry of nucleotides and nucleic acids.
7- Point out the processes of replication ,transcription and translation and their regulation
8- Identifies recombinant DNA bio-techniques.
9- Explain different DNA amplification techniques and their applications.
10- Illustrate cell cycle, apoptosis and carcinogenesis processes and their regulatory factors.

- **Intellectual Skills**

By the end of the course ,student should be able to :

1- Interpret the observations of chemical tests to identify unknown sugar or protein solution.
2- Interpret symptoms, signs and biochemical laboratory findings of some vitamins deficiency disease.
3- Point out the clinical significances of some enzymes reactions and kinetics.
4- Point out the applications of molecular biology in basic and clinical sciences

- **Professional and Practical Skills:**

By the end of the course , student should be able to :

1- Perform some basic chemical tests to identify different sugars and proteins
2- Use the electrophoresis technique to separate nucleic acids & proteins
3- Perform and demonstrate DNA extraction and be aware of further techniques using the extracted DNA

- **General and Transferable Skills:**

By the end of the course ,student should be able to :

1- Work effectively in a group in lab or during preparation of seminars.
2- Manage time effectively and use informational technologies during learning.

Topics:

1. **Physical chemistry:** water, acids and bases, buffer, acid-base balance disturbance solutions (types and properties).
2. **Carbohydrates** : classification (monosaccharide – disaccharides and polysaccharides), properties and biological importance.
3. **Lipids:** fatty acids, eicosanoids simple lipids, conjugated lipid (phospholipids and cerebrosides), lipoproteins and derived lipids (including steroids); their properties and biological importance.
4. **Proteins:** classification and properties of amino acids. The protein conformation, properties of proteins, isolation and purification, classification into simple and conjugated proteins.
5. **Immunoglobulins**: immune system, primary and secondary immune response, structure and types of immunoglobulins.
6. **Enzymes:** nature, mechanism of action, specificity, classification, co enzymes, enzyme units, enzyme kinetics, factors affecting rate of enzyme action, enzyme inhibition, regulation of enzyme activity, plasma enzymes.
7. **vitamins** : introduction and classification (fat soluble vitamins & water soluble vitamins) , chemistry, function, deficiency manifestations,.
9. **Chemistry of nucleotides**: Structure of nitrogenous bases, nucleosides and nucleotides ,free nucleotides of biological importance.
10. **Chemistry of nucleic acids** : Structure of DNA, chromatin and chromosomes, mitochondrial DNA, and types of RNA.
11. **DNA replication and repair**.
12. **Transcription** (RNA synthesis), processing of RNA, regulation of gene expression.
13. **Translation** (protein synthesis) : synthesis of polypeptide chain post-translation processing
14. **Gene mutation**: causes, types and effects.
15. **Apoptosis:** definition, causes and mechanism.
16. **Carcinogenesis**: proto-oncogenes, oncogenes and tumor suppressor genes.
17. **Recombinant DNA technology** :Restriction enzymes, cloning, PCR, hybridization, DNA sequencing, gene therapy, human genome project.
18. **Milk & Nutrition**

Practical classes:

1- Identification of unknown solution:

- Carbohydrates:
    a. Monosaccharides: glucose, fructose.
    b. Disaccharides: sucrose, maltose & lactose .
    c. Polysaccharides: starch, dextrin.
- Protein
  peptone, gelatin, caseinogen, alkaline metaprotein & egg white(albumin and globulins).
- Uric acid and Urea.

2- Extraction of deoxyribonucleic acid (DNA)

3- Agarose gel electrophoresis.

4- Physical chemistry

Self learning activity:

1st year medical students will be divided into 4 sections. Every section will be divided into 5 subgroups. Each one will be responsible for preparation and presentation of an essay in one of preset topic on recent issues related to applied Biochemistry and finally evaluated by staff members of the department.

Teaching & time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	3 times/ week; one hour each between 8.00 a.m and 2.00 p.m	3 x 25 weeks	75
Practical	2 hour every week according to the current time table	2 x 24 weeks	48
S. L. activity	1 hour every 2 weeks according to the current time table	1 x 12 weeks	12
Total			135

Student Assessment:

Term Examinations

Marks

- ***November*** **5**
- ***January*** **20**

Final Examination

- ***written*** **75**
- ***Oral Examination*** **15**
- ***Practical Examination*** **25**

Other types of assessment

- ***Student logbook*** **5**
- ***Student presentation*** **5**

Total : 150 marks

- ***The minimum passing score is 90 marks provided at least 30 marks are obtained in the final written examination.***

- ***Passing grades are :***
  EXCELLENT≥ 85%,
  VERY GOOD 75-<85%,
  GOOD 65-<75%
  FAIR 60 -< 65%

- ***The minimum acceptable practical (and tutorial) attendance is 75%; in order to attend for the final practical examination.***

- ***The practical marks(20 marks) are divided as the following:-***
  a- Ten marks for practical lab exam
  b- Ten marks: practical sheet exam .

Logbook Activities

A. Practical lessons

B. Clinical cases

C. Virtual Lab

D. Activities of self learning

- **Student presentation preparation**
- **Essay writing**

E. Other Activities in the field of Medical Biochemistry:

- **Seminar attendance**
- **Workshops and training courses attendance**
- **Conferences attendance**
- **Others**

F. Quizzes

A. Practical Lessons

Attendance of Practical lessons:

week	Date	Activity		Signature
		Title	Result	

1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

week	Date	Activity		Signature
		Title	Result	

13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				

B. Clinical Cases

Case No.	Date	Answer	Signature

1			
2			
3			
4			
5			

Case No.	Date	Answer	Signature
6			
7			
8			
9			
10			

C. Virtual Lab

Date	Subject	Supervisor

D. Self learning activities

1- Student Presentation Preparation

Title: ……

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Items:

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Summary:

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Presentation date: ……

Supervisors:

Name				
Signature:				

Evaluation:

2- Essay writing

Title: ……

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Students sharing:

1-..... 2- .....

3-..... 4- .....

5-..... 6- .....

Abstract of the essay:

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Presentation date: .....

Supervisors:

Name				
Signatu				

Evaluation:

E. Other Activities in the field of Medical Biochemistry:

1- Seminars attendance:

Date	***Subject***	***Supervisor***

2-Workshops and training courses attendance:

Date	Subject	Supervisor

3-Conferences attendance:

Date	Conference	Supervisor

4-Others:

Date	Activity	Supervisor

F.Quizzes

Quizzes Answers

Quiz No	*Date*	*Answer Mark*	*Supervisor*

Attendance Report

A. Attendance Report

(Filled by the department)

- *Number of sections attended:*
- *Number of sections missed:*
- *Total number of sections:*
- *Percentage of attendance (**Number of sections attended/ total number):***

Signature of attendance employee ***Signature of principle supervisor***

B. Final Attendance Report

(Filled by Supervisors)

1- Attendance			
□ **Above 85%**	□ **Above 75%**	□ **Below 75%**	
2- Commitment Level			
□ **Excellent**	□ **Satisfactory**	□ **Poor**	
3- Mid- term Evaluation:			
4- Presentation Evaluation			
□ **Excellent**	□ **Satisfactory**	□ **Poor**	
5- Essay Evaluation			
□ **Excellent**	□ **Satisfactory**	□ **Poor**	
6- General Evaluation			
□ **Excellent**	□ **Good**	□ **Average**	□ **Poor**

Written Conclusive Opinion (Optional)

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