

BIOCHEMISTRY 2 COURSE SPECIFICATION

2016-2017

University: Assiut

Faculty: Medicine

Departement : Medical BIOCHEMISTRY

1-Basic course information

Title: Biochemistry 2

Code:

Amed06

Academic year / Level:Second year

Programme(s) on which the course is given:M.B.B.Ch. program

Department offering the course:Department of Medical Biochemistry

Lecture: 75 hours

Tutorial/practical: 60 hours

Total: 135 hours

Date of specification approval: 9/ 2016

Date of last revision: 9-2016

2-Overall aims

By completion of this course, the students should be able to:

- Provide the student with the biochemistry of the carbohydrate, lipid and protein metabolism
- Provide the student with the biochemistry of minerals metabolism, tissue chemistry and body fluids
- To enable the student to get the scientific basis of xenobiotic, cancer biology and hormones.
- Provide the student with sufficient knowledge about obesity and starvation and the metabolic interrelations.
- Provide the student with the basic biochemistry of hemoglobin metabolism and biological oxidation.
- To enable the student to detect problems of metabolic and congenital disorders.
- To enable the student to detect the basics of diagnosis and prevention of cancer.

3- Intended learning outcomes (ILOs)

A- Knowledge and understanding

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

- A1- Describe the metabolic pathways of carbohydrates, lipids, proteins and nucleotides.(A6, A7)
- A2- Mention the steps and regulatory mechanisms of metabolic pathways (A6, A7)
- A3- Define the related metabolic disorders and their clinical prints on biochemical and molecular basis (A8, A9, A20)
- A4- Describe hormones, their biochemical, clinical and laboratory importance.(A6, A7, A8, A9, A20)
- A5- Describe the components of some body fluids; like urine and milk. (A6, A9)
- A6- Define basis of biological oxidation, metabolism of xenobiotics, cancer biology, tissue chemistry, macro and micro minerals and Hemoglobin (A6, A7, A8, A9, A20)
- A7- Mention the biochemical basis of obesity and starvation and integrative aspects of metabolism. (A6, A7, A8, A9)
- A8- Adopt the principles of lifelong learning. (A20)

B- Intellectual skills

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

- B1- Interpret symptoms, signs, biochemical laboratory finding of some metabolic disorders (B1- B8)
- B2- Correlate causes, mechanisms and effects of diseases based on knowledge of metabolism (B1- B8)
- B3- Interpret and point out the clinical significance of determination of plasma levels of glucose, total proteins, urea, inorganic phosphorus, creatinine and uric acid and some enzymes and hormones. (B1- B8)

C- Professional skills

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

- C1- Perform tests which are important for detection of abnormal constituents in urine (C2, C3, C4)
- C2- Perform tests which are important for detection of some inborn errors of metabolism (C2, C3, C4)
- C3- Perform tests which are important for determination of protein, creatinine, urea, uric acid,glucose, amylase, inorganic phosphorus in blood and urine. (C2, C3, C4)
- C4- performs tests for endocrinal gland functions and urinary calculi. (C2, C3, C4)
- C5- Perform tests to estimate gastric acidity. (C2, C3, C4)

D- General skills

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

- D1- Deliver reports and essay on the different scientific items in the field of biochemistry. (D11, D12)
- D2- Display the biochemical results in printable sheets (D11, D12)
- D3- Share in groups and team in labs (D17)
- D4- Use computer and internet to extract information and knowledge. (D15)
- D5- Apply safety and infection control measures during practice. (D9)
- D6- Recognize and accept limitations in knowledge and clinical skills. (D14)
- D7- Be always responsible in completing his/ her work and coping with changing environment, always striving for excellence. (D13, D14)
- D8- Effectively manage time and resources and set priorities. (D16)

4-Course contents:

Topic	No. of Hours	Lecture	Tutorial/Practical
Carbohydrates metabolism	20	12	8
Lipids metabolism	20	12	8
Proteins and nucleoproteins metabolism	36	14	22
Minerals	13	7	6
Hormones	12	8	4
Xenobiotics	3	3	-
Obesity, starvation and Metabolic interrelations	4	4	-
Hemoglobin metabolism	2	2	-
Body fluids	16	4	12
Biological oxidation	4	4	-
Tissue chemistry	2	2	-
Cancer biology	3	3	-
Total	135	75	60

5- Teaching and learning Methods

- 1- Lectures
- 2- Discussion sessions(tutorials)
- 3- Practical sessions to gain practical skills
- 4- Assignments and reports
- 5- Training on multiple choice questions (formative)&essay in tutorials besides the summative questions.
- 6- Case studies for practical skills.
- 7- Student log book.

8- E-Learning system interactive discussions.

Teaching and learning facilities:

- 1- Student laboratories.
- 2- Computers and data show
- 3- Student's library updated review books in medical biochemistry and CDs of the course.
- 4- E-Learning

6- Teaching and learning Methodsfor students with learning

difficulties:

- 1- Lectures
- 2- Discussion sessions(tutorials)
- 3- Practical sessions to gain practical skills
- 4- Assignments and reports
- 5- Special low price classes outside the teaching schedule.

7- Student assessment Methods:

A – Methods:

- 1- Written exam (long and short essay and MCQ) to assess(A1-A7, B1-B3)
- 2- Practical exam (OSCE) to assess (B1-B3, C1-C5, D1-D3)
- 3- Oral exam to assess (A1-A8, B1-B3).
- 4- Assignments and reports (D1- D5)
- 5- Case studies (A1-A8, B1-B3, C1-C5, D1-D5)

B - Assessment schedule

Assessment 1: Multiple-choice questions (formative/summative) both in the 3rd month and 6th month

Assessment 2:Mid term exam (formative/summative) by the end of the 4th month

Assessment 3: Final practical examination by the end of the year

Assessment 4:Final written examination by the end of the year

Assessment 5 :Final oral examination by the end of the year

Weighing of assessments

Method of assessment	Marks	Percentage of total
Final written examination	75	50%
Final oral examination	30	20%
Final Practical	15	10%
Mid year examination & continuous assessment	30	20%
Total	150	100%

8- List of references

1- Course notes:

Department course notes (Lectures and practical).

2- Essential books:

Department notes

3- Recommended books:

- Harpers Illustrated Biochemistry (30th edition, Published December 18th 2014) by Victor W. Rodwell, David Bender, Kathleen M. Botham, Peter J. Kennelly, P. Anthony Weil.
- Textbook of Biochemistry with clinical correlations (7th edition, Published January 19th 2010) by Thomas M. Devlin.
- Lippincott's illustrated reviews in Biochemistry (8th edition, Published January 14th 2017): by Denise Ferrier.

4- Periodicals and web sites of biochemistry

[http :\\ highwire stanford.edu.](http://highwire.stanford.edu)

[http :\\ www.nln.nib.gov.](http://www.nln.nib.gov)

[http :\\ www.biology arizona .edu \\default.html](http://www.biology.arizona.edu/default.html)

[http :\\ mbc. Harvard. Edu \\biolinks.html](http://mbc.harvard.edu/biolinks.html)

**Course coordinator: Prof. Dr. Soad Mohamed Abdel-Ghany
Dr. Sahar El-Deek Mohamed
Dr. Michel Effat Fakhry**

Head of Department: Prof. Dr. Abd El-Raheem Meki