Biochemistry I; Code: (341/5)

A- Basic Information

Programme(s) on which the course is given:	Bachelor degree of Pharmacy
Department responsible for offering the course:	Department of Biochemistry
Department responsible for teaching the course:	Department of Biochemistry
Academic year:	Second professional year- First Term/ 2021/2022
Course title and code:	Biochemistry I, 341/5
Contact hours	Lecture: 2 hr, Practical: 2 hr, Total: 4 hrs/week
Course Coordinator:	Dr./ Sara Mostafa

B- Professional Information

The course aim and intended learning outcomes are based on that mentioned in the programmed specifications, with more course-related specific details.

1 - Overall Aims of the Course

Upon successful completion of this course, the students must be able to

- Illustrate the chemical structure of various biological molecules (sugars, lipids and fats, nucleic acids, and amino acids and proteins)
- Apply this knowledge correctly in understanding the functions elaborated by these biological molecules.

Identify quantitatively and qualitatively the constituents of human body fluids (as urine) and explain the changes in these constituents related to various physiological and pathological conditions, either related to diseases or genetically

2 - Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

The students must be able to:

a_1- Define urine as an important biological fluid and the precautions required for proper urine sampling.

a_2- Explain human body system chemistry with the chemical and molecular changes occurring in humans involving enzymes, amino acids, proteins, nucleic acids, lipids and carbohydrates .

a_3-Illustrate the morphologic and minute structures of human cells and its various compartments.

a_4-Define the techniques of biochemistry lab and their applications in addressing issues related to human physiology and different diseases.

a_5-Define different causes and case studies of biochemical abnormalities in urine and human body involving abnormalities in enzymes, amino acids, proteins, nucleic acids, lipids, and carbohydrates.

a_6- Explain the introduction of nutrition and vitamins.

b- Intellectual Skills:

The students must be able to:

b_1- Interpret and evaluate normal and abnormal urine tests results.

b_2- Apply biochemical knowledge in the field of clinical and medicinal lab based on acquainting basal information required to understand enymes, aminoacids, proteins, nucleic acids, lipids and carbohydrates.

b_3- Suggest clear advice and critical decisions about patient's state of health. Such decisions may not only be related to medications but may extend to health promotion, disease prevention and encouraging self-care.

b_4-Distinguish minor problems from those which requires prompt medical intervention

c- Professional and Practical Skills

The students must be able to:

c_1-Conduct standard biochemistry laboratory procedures and instrumentation.

c_2- Implement different methods of analyzing urine sample constituents, in order to achieve effective diagnostic testing.

c_3- Advise the patient about his condition, diet regimen and life style

c4-Handle chemical, urine samples and biological fluids safely

d- General and Transferable Skills: The students must be able to:

d_1- Find and assess the biochemical information quickly.

d_2- Work as a member in a lab team.

d_3- Interact and communicate orally and in writing with other health care professionals in their own specialized language and also express complex issues in terms that lay people can understand.

d_4- Demonstrate critical thinking, problem-solving, decision making, and interpretation of laboratory results.

d_5- Write laboratory reports and presentation of laboratory information

3 - Course Contents

Topics actually taught	No. of Hours
1-Theoretical Part	
Enzymes	4
Amino acids and Proteins	4
Vitamins and Minerals	2
Carbohydrate chemistry	2
Fatty acids and Lipids	2
DNA replication	2
Transcription	2
Translation	2
Tutorial	2
Total no of hours	22
2-Practical Part	
Introduction to urine analysis	2
Physical examination of urine	2
Chemical examination of urine	2
Microscopical examination of urine	4
Enzymes	2
Protein structure and denaturation	2
Nucleic acid extraction	2
Food Calorimetry	2
Total no of hours	**18**

4 - Teaching and Learning Methods

- Lectures (board and data show)
- Practical sessions (Tools: lab glassware, chemical reagents, lab instruments: spectrophotometer).

5 - Student Assessment Methods

- Periodic exam to assess knowledge, intellectual and understanding skills.
- Practical exams to assess intellectual, practical and transferable skills.
- Final exam to assess understanding, knowledge, intellectual, professional and transferable skills
- Oral exam to assess knowledge and intellectual skills.

Assessment Schedule

Assessment 1	Periodic exams	Week 6
Assessment 2	Practical exam	Week 11
Assessment 3	Oral exam	Week 13
Assessment 4	Final written exam	Week 13

Weighting of Assessments

Midterm examination and Quizzes	10 %
Final term Examination	60%
Oral Examination	10%
Practical Examination	20%
Total	**100%**

List of References

- Course notes:

Lecture notes prepared by the instructor.

- Recommended books:

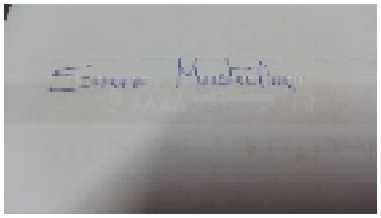
Harper's Illustrated Biochemistry, 30 th edition, 2014**,** McGraw-Hill

Lipincott's illustrated reviews: Biochemistry, sixth edition, 2013, Lipincott-Williams and Wilkins

- Periodicals, Web sites, … etc Journal of Biological Chemistry www.ncbi.nlm.nih.gov www.nlm.nih.gov/ www.amhrt.org http://golgi.harvard.edu/biolinks. www.nih.gov

6 - Facilities Required for Teaching and Learning

- Study halls, data show, books, laboratories, glassware, calibrated instruments and spectrophotometers



Course Coordinator: Dr./ Sara Mostafa

Head of Department: Prof. Dr./ Nadia Hamdy

Date: 9/2021

Course name	Biochemistry I
Code	341/5

Course matrix

Course content	a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	c1	c2	c3	c4	d1	d2	d3	d4	d5
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