

Course Description (Biochemistry Practical/second semester)

Performance review of higher education institution (assessment of the academic program)

This course description summarizes the key characteristics and anticipated learning objectives for students, assessing their utilization of available learning resources, and must be aligned with the program description.

1. Educational Institution	Ministry of Higher Education and Scientific Research Al-Zahrawi University
2. University Department / Center	College of Pharmacy
3. Course Name / Code	Biochemistry (Practical) PCLS 38
4. Programs in which it is included	Bachelor of Pharmacy
5. Available Forms of Attendance	Daily Attendance
6. Semester / Year	2d Semester, third Stage
7. Total Number of Study Hours	2 hours per week for each group
8. Date of preparing this description	2025-2026
9. Course Objectives:	To integrate key concepts describing the traditional core topics of Biochemistry: structure and metabolism. At the end of the semester the students should be able to understand the chemical structure, and function of all biomolecules present in the living organisms
10 Learning Outcomes, Teaching and Learning Methods, and Evaluation	

A. Knowledge and Understanding

A.1: Study of basic chemical compounds (carbohydrates \ protein \ fat)

A.2: Study of metabolic phases and metabolic metabolism that occur in the body during the stages of starvation and nutrition.

A.3: Adding the practical laboratory aspect to approximate the scientific concept of the student

B. Subject-Specific Skills

B.1 Teaching skill in analytical biochemistry

B.2: Preparing and distinguish between classes of biochemical compounds.

B.3: The student should have the ability to characterize and draw models..

B.4 The student should have the ability to link the causes with biochemical effect

Teaching and Learning Methods

1. Discussion and dialogue method.
2. Troubleshooting and treatment.
3. Seminars.

C. Evaluation Methods

1. Submit weekly reports and work in the laboratory.
2. Oral assessment and practical performance evaluation.
3. Written tests
4. Group practical project

D. Thinking Skills

D1. Encourage students to find problems related to the subject of study

D2. Encourage students to find solutions to those problems

D3. Conduct experiments individually and collectively.

D4. Compare results and troubleshoot

E. General and Transferable Skills

D1. The student should be able to think logically to solve problems

D 2. The student should acquire manual work skills.

D 3. The student should be able to develop and innovate skills

11. Course Structure					
Weeks	Hours	Required Learning Outcomes	Unit Name / Course or Topic	Learning Methods	Evaluation Method
1	2	Knowledge Experiment skill	General urine examination: Physical properties.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
2	2	Knowledge Experiment skill	General urine examination: Chemical properties; Protein in urine; Sugar in urine.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
3	2	Knowledge Experiment skill	General urine examination: Ketone bodies in urine (Rothera test); Bile salts in urine (Hays test); Bilirubin in urine.	Blackboard ,Screen Presentations and lab experiment	Daily exam and oral questions
٤	2	Knowledge Experiment skill	Cerebrospinal fluid analysis: Measurement of glucose in CSF.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
٥	2	Knowledge Experiment skill	Cerebrospinal fluid analysis: Measurement of chloride in CSF.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
٦	2	Knowledge Experiment skill	Cerebrospinal fluid analysis: Measurement of proteins in CSF.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
٧	2	Knowledge Experiment skill	Serum calcium measurement.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
٨	2	Knowledge Experiment skill	Blood phosphorus measurement (inorganic phosphate).	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions

٩	2	Knowledge Experiment skill	Serum total proteins (quantitative analysis).	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
١٠	2	Knowledge Experiment skill	Estimation of urea level in the blood.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
١١	٢	Knowledge Experiment skill	Measurement of serum uric acid level.	Blackboard , Screen Presentations and lab experiment	Daily exam and oral questions
١٢	٢	Knowledge Experiment skill	Measurement of serum ascorbic acid level.	Blackboard ,Screen Presentations and lab experiment	Daily exam and oral questions
١٣	٢	Knowledge Experiment skill	Gastric juice analysis: Detection of free hydrochloric acid concentration.	Blackboard ,Screen Presentations and lab experiment	Daily exam and oral questions

12. Infrastructure	
Required Readings:	References: Timea Gerczei, Scott Pattison Biochemistry Laboratory Manual For Undergraduates An Inquiry- Based Approach
Special Requirements (Workshops, Journals, Software, Websites):	Electronic Websites: https://www.youtube.com/@haneenhaleemshablawi2361
Social Services (Guest Lectures, Professional Trainings, Field Studies, Others)	Organizing workshops and courses for graduates:

13. Admission:	
Prerequisites	Admission according to the central plan
Minimum Number of Students	/
Maximum Number of Students	Admission exceeds the capacity plan

Name of the Instructor: I.a. Anas Adnan