



**Department of Anesthesia**  
**College of Health Sciences**  
**University of Cihan- Sulaymaniyah**

**Subject: Practical Clinical**

**Biochemistry 2<sup>nd</sup> Stage**

**2<sup>nd</sup> semester**

**Course Book –Year 2023-2024.**

**Lecturer's name: Darya Shorsh Hamad**

**Academic Year: 2023-2024**

# Course Book

1. Course name	Practical Biochemistry
2. Lecturer in charge	Darya Shorsh Hamad
3. Department/ College	Medical Laboratory Analysis/ Health Science
4. Time (in hours) per week	2 Hrs Practical
5. Office hours	All days of the week from 9:00 to 14:00 pm
6. Course code	
7. Teacher's academic profile	<a href="https://uni.sulicihan.edu.krd/qa/profile.php?id=149">https://uni.sulicihan.edu.krd/qa/profile.php?id=149</a>
8. Keywords	Spectrophotometry, Diabetes, Lipid Profile Tests, Liver Function tests, Kidney Function Test, Electrolytes

## 9. Course overview:

This course is designed to introduce students to the field of Clinical Practical Biochemistry, with a focus on comprehending the principles, procedures, physiological foundations, and the significance of tests conducted in Clinical Chemistry laboratories.

The primary objective is to familiarize students with the theoretical and applied aspects of clinical biochemistry, particularly in a clinical context. Throughout the duration of the course, students will delve into the examination of biochemical processes, enabling them to discern between the normal functioning of health and the irregularities associated with diseases across various organ systems. Special attention will be given to meticulously chosen, quality-controlled testing and assessments.

The course will extensively cover essential metabolic disorders such as diabetes, lipid dysfunction, renal issues, liver diseases, pancreatic disorders, and bone-related conditions. Emphasizing a problem-solving approach, the curriculum will integrate information gathered from life histories, behaviors, symptoms, and signs to optimize the utilization and interpretation of biochemical testing—a universally applicable skill in healthcare.

The overarching aim is to equip students with the knowledge and skills to identify and quantify a diverse range of analytes in blood and bodily fluids using analytical techniques in clinical laboratories. This approach extends beyond human healthcare, also encompassing considerations relevant to animal welfare.

The course will also explore healthcare approaches to populations, addressing current methodologies for managing prevalent metabolic syndrome disorders (such as diabetes, obesity, hypertension, and hyperlipidemia). This will involve employing evidence-based risk factors and targeted testing to allocate resources and treatment where the potential benefits are most significant. The comprehensive perspective, ranging from molecular understanding to population-level insights, adds considerable value to Honors programs in Medical Sciences and Biomedical Sciences.

## 10. Student Obligation

A student has an obligation to respect the ethical standards of **Cihan University** in the following points:

### A. Class Attendance and responsibilities:

1. Students are expected to attend each class for the entire semester.
2. If a student arrives more than 15 minutes late or leaves more than 15 minutes early, they will be marked as absent for the whole hour.
3. Students are responsible for material present in lectures.
4. Students will take several quizzes over the course and the quiz marks will be counted toward the final grade. So, try to prepare yourself for quiz every week.

### B. Penalty and acceptable excuses for class and exam absence:

5. Only students with official absence, family crises, and illness are excused from class.
6. Three occasions of lateness count as one absence.
7. The student who misses 10 percent of the classes will be placed on probation.
8. Since all examinations are announced in advance, **ZERO** grade will be given to any missed examination unless a student has an acceptable reason, such as illness, for not being able to take the examination during all those days when the examination was announced.

## 11. Forms of teaching

The teaching format for this practical biochemistry course integrates practical application. Lectures serve as the foundation for understanding key biochemical concepts, while laboratory exercises offer hands-on experience for skill development. To ensure comprehensive understanding and retention, the course incorporates mandatory quizzes and a final evaluation. Additionally, the learning experience is enhanced through a variety of supplementary materials, including specialized assignments, Lab Report, group-based learning activities, video demonstrations, and online tools.

## 12. Assessment scheme

<b>Practical Session</b>			
<b>No.</b>	<b>Activities</b>	<b>Number or Quantity</b>	<b>Mark %</b>
1	Quiz	4-5	4
2	Lab. Report	8-10	8
3	Lab. Presentation	3-4	4
4	Lab. Attitude	-	2
5	Attendance	-	2
<b>Total</b>			<b>20</b>
<b>Final Exam</b>			
1	<b>Practical Examination</b>	1	20
<b>Total</b>			<b>40</b>

## 13. Student learning outcome:

The students will learn:

1. Ability to develop basic knowledge about Clinical chemistry and Medical laboratory technology.
2. Knowledge about how changes to the normal physiology of cells and systems can underlie human diseases and disorders
3. Evaluate suitability and prepare specimens for chemical chemistry analysis.
4. Explain, perform and evaluate clinical chemistry procedures and correlate test results with patient conditions.
5. Exhibit knowledge of body chemistry levels under healthy or abnormal conditions
6. Ability to browse for up-to-date information about Clinical biochemistry from a variety of sources.

## 14. Course Reading List and References:

1. Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Nader Rifai, 6th Edition (2017).
2. Basic Concepts in Clinical Biochemistry: A Practical Guide, Vijay Kumar, Kiran Dip Gill, 1st Edition (2018).
3. Richard A. McPherson, MD, Matthew R. Pincus, MD, PhD, HENRY'S Clinical Diagnosis and Management by Laboratory Methods, Last edition.

## 15. Lessons plan

No. of week	Subject- Practical
1	First Week Lab-Introduction
2	Spectrophotometry- Determination of Lambda Max
3	Determination of Serum Glucose
4	Determination of Serum Urea
5	Determination of Serum Creatinine
6	Determination of Serum Bilirubin
7	Determination of AST and ALT
8	Determination of serum TG
9	Determination of Serum Cholesterol
10	Determination of ALP
11	Determination of CPK
12	Determination of amylase
13	LDL/ HDL cholesterol Test
14	Review
15	Final Exam

## **16. Type of exams questions**

Q1. Write true or false for the following statements

Q2. Choose one correct answer

Q3. Answer the followings

Q4. Fill in each blank

Q5. Explain each of the following concepts

## **17. Peer review:**

I certify that:

1- I read and verify all requirements of teaching quality assurance are respected in this course book.

2- The scientific contents are new, convenient and well organized for this stage.

3- The order of chapters is well done.

4- References are new and available for students.

That's why I signed on this course book. And I take all responsibilities.

**Name: Darya Shorsh Hamad**

**Scientific title:** Assistant Lecturer

University: Cihan University of Sulaimaniya

College: Medical Sciences / Medical Laboratory Analysis

Department E-mail: [darya.shorsh@sulicihan.edu.krd](mailto:darya.shorsh@sulicihan.edu.krd)

Date: 15/ 01/ 2024

Signature:

**Main Lecturer in charged**

**Asst. Lec. Darya Shorsh Hamad**

**Head of The Department**

**Dr. Avin Salih**