



## Course Book

<b>Course Description</b>	<p><b><u>Clinical chemistry</u></b> Refers to the biochemical analysis of body fluids. It uses chemical reactions to determine the levels of various chemical compounds in bodily fluids. Several simple chemical tests are used to detect and quantify different compounds in blood and urine, the most commonly tested specimens in clinical chemistry. Techniques such as spectrophotometry, immunoassays, and electrophoresis are also used in clinical chemistry to measure the concentration of substances such as glucose, lipids, enzymes, electrolytes, hormones, proteins, and other metabolic products present in human blood and urine.</p>
<b>Course objectives</b>	<p><b>This course aims to provide comprehensive theoretical knowledge in clinical chemistry including kidney, liver and limits for all chemical tests, diagnosis and disease treatment and advanced practical training in this diverse field</b></p>
<b>Student's obligation</b>	<p><b>The student is given his rights and he must carry out his duties. The student must attend the classroom and medical laboratories and attend assignments such as facades, applications, classroom medical exercises, write reports, attend seminars and conferences at specified times, visit hospitals, get acquainted with modern medical devices, respect doctors and professors</b></p> <p><b>Student learning goals for the clinical chemistry practicum focus on active ...</b></p> <p><b>Student's obligation</b></p> <p><b>.1- The student attention in all theoretical and practical lectures in academic year</b></p>

	<p><b>.2- Completion of all tests</b></p> <p><b>.3- Attendance in exams</b></p> <p><b>.4.prepare reports</b></p>				
<p><b>Required Learning Materials</b></p>	<p><b>You should always know your lab equipment well before you do any type of experiment because without the proper knowledge of your equipment you will not know how to use your materials or how to correct a mistake that you could make with your equipment.</b></p> <p><b>analytical instruments include mass spectrometers, chromatographs (e.g. GC and HPLC), titrators, spectrometers (e.g. AAS, X-ray, and fluorescence), particle size analyzers, rheometers, elemental analyzers (e.g. salt analyzers, CHN analyzers), thermal analyzers, and more.</b></p>				
<p><b>Evaluation</b></p>	<p><b>Task</b></p>		<p><b>Weight (Marks)</b></p>	<p><b>Due Week</b></p>	<p><b>Relevant Learning Outcome</b></p>
	<p>Paper Review</p>				
	<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Assignments</b></p>	<p>Homework</p>	<p>14</p>	<p>2</p>	<p>(3-5) A degree for homework and the student prepares himself to answer the questions directed to him.</p>
		<p>Class Activity</p>	<p>2</p>		<p>The activity inside the classroom has a special importance for students, especially the outstanding students, and it encourages the underperforming to raise their educational level</p>
	<p>Report</p>	<p>۱۲</p>	<p>۱</p>	<p><b>Writing (1) a report in</b></p>	

				each semester that is a factor in gaining information for the student
	Seminar	۱۲	۱	Submit (1) a report in each semester to encourage students to present other seminars.
	Essay	-----		
	Project	-----		
	Quiz	4	۲	sing 2-4 Ques is useful for the student to know about the tests and to be able to answer the questions addressed to him
	Lab.	-----		
	Midterm Exam	16		The score for the midterm exam is as follows: 6 marks for the theory and 10 marks for practical
	Final Exam	40		The final exam (40) degree (of 15 theoretical exam and practical exam 25 degrees)
	Total	100		The final degree is (100) degrees
		The Mid Term Exam (Practical and Theory) (25) degrees (10) Theory degree (15) Score of the Practical test (2) Cause. Each pin is 2 degrees		

	<p style="text-align: right;">4 = (2x 2)</p> <p style="text-align: right;">(10) degrees for (Rapport, seminar 10 degrees Quiz(8)</p> <p style="text-align: right;">** Homework. For every homework assignment, grade is 5 ** 5 degrees. = 2 x 2.5 Lab report(10) Activity in the class = (2) degree. degree 20 = final practical final theory = 20 degree</p>
<p><b>Specific learning outcome:</b></p>	<p><b>he energy and speed of chemical reactions; unit conversions and their importance in clinical medicine; molecular interactions and chemical</b></p>
<p><b>Course Reference s:</b></p>	<p>1-Blaack, EE; Saris, WHM (1995). "Health Aspects of Various Digestible Carbohydrates". <i>Nutritional Research</i> <b>15</b> (10): 1547-73.</p> <p>2-Jenkins, DJ; Jenkins, AL; Wolever, TM; Josse, RG; Wong, GS (1984). "The glycaemic response to carbohydrate foods". <i>The Lancet</i> <b>324</b>: 388–391.</p> <p>3-Wolever, Thomas M. S. (2006), <i>The Glycaemic Index: A Physiological m, Classification of Dietary Carbohydrate</i>, CABI, pg. 65.</p> <p>4-HSPH (Harvard School of Public Health) (2014): Carbohydrates and Blood, Sugar". <i>The Nutrition Source</i>.</p> <p>5-Watanabe, Hirofumi; Hiroaki Noda; Gaku Tokuda; Nathan Lo (1998). "A, cellulase gene of termite origin". <i>Nature</i> <b>394</b> (6691): 330–331.</p> <p>6-Roman AH and Conway T. (1996): Evolution of carbohydrate metabolic, pathways, <i>Res Microbiol</i> <b>147</b> (6-7): 448-55.</p> <p>7-Keller, Ralser and Tutchyn (2014): Non enzymatic glycolysis and petose phosphate pathway like reactions in a plausible Archean ocean. <i>Mol. Syst.Biol.</i> <b>10</b>: p.725.</p>

8. Pharmacology for Nurses and Allied professions . KD chauhuri and pk chaudhuri, 342

pages Roprint 2002. ISBN 61 – 7179 – 438 – 6. Price 150 . 00

9. Textbook of medical Biochemistry

MN chatterjea and Rana shinde. Seventh Edition. 824 Pages 2007. ISBN 81 8448 – 134 – 9

10, Textbook of Biochemistry

DM vasudevan and sreekumariS. Fifth Edition, 552 pages 2007, ISBN 81 8448 – 124 – 1

11. K Sembulingam and prema sembulingam . Fourth Edition, 988 pages ,

2006 ISBN 81 – 8061 – 826 – 9

<b>The Topics: Clinical chemistry syllabus (Theory)Subjects</b>	
1	Introduction, Define the Clinical chemistry, Patient preparation
2	Serum and plasma, and the differences between them, Blood clotting, Coagulation
3	Carbohydrates, type of carbohydrates
4	Diabetes mellitus, Classes of diabetes mellitus disease
5	Several types of blood glucose tests

6	Cholesterol, type of cholesterol
7	Cholesterol Levels, The relation between LDL and HDL
8	Types of lipid profile test
9	Kidney Function, Symptoms of Kidney Problems
10	Kidney problems
11	Estimated Glomerular Filtration Rate (GFR)
12	Types of Kidney Function Tests
<b>Extra notes:</b>	
<b>External Evaluator</b>	