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**Department of Chemistry**

**College of Science**

**University of Salahddin**

**Subject: Biochemistry and clinical biochemistry**

**Course Book – *Stage* (4)**

**Lecturer's name: Assist. Prof. Dr. Kamaran Kaiani Abdoulrahman**

**Academic Year: 2021-2022**

**Course Book**

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| **1. Course name** | **Biochemistry and clinical chemistry** |
| **2. Lecturer in charge** | **Kamaran Kaiani Abdoulrhaman** |
| **3. Department/ College** | **Chemistry/Science** |
| **4. Contact** | **e-mail: kamaran.abdoulrahman@su.edu.krd** |
| **5. Time (in hours) per week**  |  **Theory: 2**  |
| **6. Office hours** | **Availability of the lecturer to the student during the week** |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | **1.Bch Sc/MSc in Biochemistry Graz University, Austria 1998****2. PhD. In Biochemistry Vienna University, Austria** |
| **9. Keywords** | **Clinical biochemistry. enzyme and disease, metabolic disorder** |
| **10. Course overview:**  Biochemists study such things as the structures and physical properties of biological molecules, including proteins, carbohydrates, lipids, and nucleic acids; the mechanisms of enzyme action; the chemical regulation of metabolism; the chemistry of [nutrition](http://www.medicinenet.com/nutrition/article.htm); the molecular basis of genetics (inheritance); the chemistry of vitamins; energy utilization in the cell; and the chemistry of the immune response. |
| **11. Course objective:*** Clinical biochemistry (also known as *clinical chemistry* or *chemical pathology)* is the laboratory service absolutely essential for medical practice or branch of laboratory medicine in which chemical and biochemical methods are applied to the study of disease.
* The results of the biochemical investigations carried out in a clinical chemistry laboratory will help the clinicians to determine the diseases (diagnosis) and for follow-up of the treatment/recovery from the illness (prognosis).
* Biochemical investigations are involved in every branch of clinical medicine.
* The results of biochemical tests may be of use in:
* diagnosis and in the monitoring of treatment.
* screening for disease or in assessing the prognosis.
* research into the biochemical basis of disease
* clinical trials of new drugs
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| **12. Student's obligation**Evaluation the student by the exams, present and activity |
| **13. Forms of teaching**Learning resources in this course include white board, lecture notes, PowerPoint presentations. |
| **14. Assessment scheme**Breakdown of overall assessment and examinationBy used program for evaluation the activity of the student which is divided as the flowing1.(5 marks) about present2.(5 marks) about quiz (2.5 marks)for each quiz3.(30 marks)about monthly exam (10 marks for each exam)4. Total marks are 40  ‌ |
| **15. Student learning outcome:**1. explain the biochemical mechanisms and pathophysiological processes responsible for common biochemical disease and disorders.  2. explain the rationale and theoretical basis for methods used in the diagnosis of common biochemical test for diagnose disease 3. compare and contrast the different patterns of biochemistry test results observed in various disease states 4. demonstrate competency in performing common analytical techniques used in clinical chemistry 5. explain the causes of pre-analytical error and describe the quality control processes used in clinical biochemistry 6. analyse complex biochemical results and suggest the likely pathological or artefactual aetiology, identifying future testing where appropriate |
| **16. Course Reading List and References‌:**▪ Key references: by electronic books▪ Useful references:C:\Users\Administrator\Google Drive\Stage-4\Untitled folder\IMG_20151113_103640_159.jpgC:\Users\Administrator\Google Drive\Stage-4\Untitled folder\Screenshot_2015-11-13-10-30-19~2.jpg▪ Magazines and review (internet): |
| **17. The Topics:** | **Lecturer's name** |
| **{Section I } : protein metabolism** 1. biosynthesis of non essential a.a 2.amino acid catabolism3. digestion of a.a 4. Revision to prepare before the exam **{Section II}: clinical biochemistry**1. Introduction clinic biochemistry12. Blood sampling13. Liver function test 14. Revision to prepare before the exam15. Renal function test 16. Lipid profile test 17. Enzymes and diseases 18. Blood cancer19.mineral and vitamin deficiency and disease 20. Revision to prepare before the  | 1st ,2nd weeks3rd ,4th weeks5th, 6th ,7th weeks.8th,9th weeks10th week11week12 week13.14,15,16,17,18 weeks19 week20,21,22 weeks23,23,24 weeks25,26 week27, 28,29 weeks30 week |
| **18. Practical Topics (If there is any)** |  |
| In this section The lecturer shall write titles of all practical topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture  | Lecturer's nameex: (3-4 hrs)ex: 14/10/2015 |
| **19. Examinations:*** ***1. How the Glutathione is synthesized with reaction***
* ***The Key:***

Glutathione is a tripeptide composed of glutamate, cystein, glycine.Reduced glutathione (GSH) maintains the normal reduced state of the cell.***2.******True or false type of exams:******Q1. Answer with true or false (10 marks)*** ***Note: the incorrect answer cancel the correct one.***1. concerning blood sampling
2. No differences between plasma or serum
3. The serum is collected without anticoagulant
4. Hemolysis is spilt RBC in to the serum
5. Vein or arteries are easy locate

 ***The Key******a..F******b.T******c.T******d.F***1. ***Multiple choices***

***Q.the following questions are multiple choice***Regard the kidney function test1. is test evalution how well the kidneys functioning
2. elevated BUN level is a more sensitive indicator of impaired Kidney function test than creatinine.
3. The kidney not play role to the aid the human body to removed the wast product from the body metabolism
4. Urea clearance test on of the most important test is done

The Key: A, c |
| **20. Extra notes:**Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks. |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ** This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.*(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌  |