**Course Description**

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| **Faculty** | **Pharmacy** |
| **Department**  | **Clinical Pharmacy** | **Level** | 7 |
| **Course**  | Practical Biochemistry for Pharmacy students  | **Code** | 1702203 | **Prerequisite** | 1702202 |
| **Credit hours** | 1 | **Theoretical**  |  | **Practical** |  |
| **Coordinator** |  | **Email** |  |
| **Teachers** | * Dr. Rasha Hussein
 | **Emails** |  |
| **Lecture Time** |  | **Place** |  | **Attendance mode** | Face to face  |
| **Semester**  |  | **Preparation date**  |  | **Modification Date** |  |

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|  **Abstracted Course Description**  |
| This course aims to implement the knowledge given in the course of Biochemistry for Pharmacy students. This course will give students the basics of laboratory biochemistry including the spectrophotometric analysis of blood glucose level, lipid profile, kidney and liver functions tests, qualitative identification of amino acids, physicochemical properties of proteins and urine analysis. Also, the students will practice calculating the analytes’ values and their pathological interpretations in different disease conditions.  |
| **Course Goals** |
| By the end of this course, the students will acquire essential skills for identifying amino acids and measuring the values of various biomarkers in biological fluids using both qualitative and quantitative methods. In addition, students will learn to interpret the obtained results in regard to the reference range.  |
| CILOs |
| Knowledge |
| A.1 Know the laboratory safety rules in a biochemistry laboratory A.2 Understand the different qualitative and quantitative tests that are used to measure different biomarkers for different diseases A.3 Compare the different biomarkers that are used to measure the functions of kidney, liver, lipid profile and glucose levels. |
| Skills |
| B.1 Calculate and interpret the concentrations of different biomarkersB.2 Judge the obtained the values in regard to the normal rangesB 3. Generate data collection, analysis, and interpretation |
| Competencies |
| C.1 Monitor of various biochemical reactions.C.2 Test the biomarkers for detecting different diseasesC.3 Assess the qualitative methods of identifying amino acids |
| Learning Methods |
| * Lectures
* Oral dissection
* Assignment
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| Evaluation Tools |
| ExamsQuiz  |
| **Week** | **Topic**  | **Learning methods** | **Evaluation tool** | **ILOs** | **Hours** |
| **1.** | Determination of proteins and amino acids. | Textbook and handouts | QUIZ | **A**  | **3** |
| **2.** | Quantitative determination of plasma total proteins | Textbook and handouts |  | **A**  | **3** |
| **3.** | Proteins denaturation, salting out and determination of isoelectric point. | Textbook and handouts |  | **A**  | **3** |
| **4.** | Determination of Blood Glucose concentration | Textbook and handouts |  | **A**  | **3** |
| **5.** | Determination of blood lipid profile | Textbook and handouts |  | **B**  | **3** |
| **6.** | Determination of the blood uric acid concentration | Textbook and handouts | Exam | **B**  | **3** |
| **7.** | Liver function tests | Textbook and handouts | Exam | **B**  | **3** |
| **8.** | Liver function tests | Textbook and handouts | **C**  | **3** |
| **9.** | Kidney function tests | Textbook and handouts | Exam | **C**  | **3** |
| **10.** | Kidney function tests | Textbook and handouts | **C**  | **3** |
| **11.** | Uric acid analysis | Textbook and handouts | Homework | **A**  | **3** |
| **12.** | Uric acid analysis | Textbook and handouts | **C**  | **3** |
| **13.** | Urine analysis | Textbook and handouts | Exam | **Abc**  | **3** |
| **14.** | Urine analysis |  | Exam |  | **3** |
| **15.** | FINAL exam  |  |  |  | **2** |

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| **Plan of Course Evaluation** |
| **Evaluation Tools** | **Mark** | **ILOs** |
| **A1** | **A2** | **A3** | **B1** | **B2** | **B3** | **C1** | **C2** | **C3** |
| **First Exam (Mid-term)**  | **30%** | \* | \* |  |  | \* |  |  |  | \* |
| **Second Exam (If available)** |  |  |  |  |  |  |  |  |  |  |
| **Final Exam** | **50%** |  |  |  |  |  | \* | \* | \* |  |
| **Activities** | **20%** |  |
| **Activities Evaluation** | Homework/Tasks | 10% |  |  |  | \* | \* |  | \* |  |  |
| Case Study  |  |  |  |  |  |  |  |  |  |  |
| Discussion and Interactions |  |  |  |  |  |  |  |  |  |  |
| Group Activities |  |  |  |  |  |  |  |  |  |  |
| Laboratory Exams |  |  |  |  |  |  |  |  |  |  |
| Presentations |  |  |  |  |  |  |  |  |  |  |
| Quizzes | 10% |  | \* |  |  | \* | \* |  |  | \* |
| Others |  |  |  |  |  |  |  |  |  |  |
| **Total** | 100% |  |  |  |  |  |  |  |  |  |

 **Components**  |
| **Book** | . Biochemistry Laboratory: Modern Theory and Techniques 2nd Editionby [Rodney Boyer](https://www.amazon.com/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=Rodney+Boyer&text=Rodney+Boyer&sort=relevancerank&search-alias=books) Practical Clinical Biochemistry: Methods and Interpretations 4th Edition by [Ph.D. Chawla, Ranjna](https://www.amazon.com/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=Ph.D.+Chawla%2C+Ranjna&text=Ph.D.+Chawla%2C+Ranjna&sort=relevancerank&search-alias=books) |
| **References** |  Biochemistry Laboratory: Modern Theory and Techniques 2nd Editionby [Rodney Boyer](https://www.amazon.com/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=Rodney+Boyer&text=Rodney+Boyer&sort=relevancerank&search-alias=books) Practical Clinical Biochemistry: Methods and Interpretations 4th Edition by [Ph.D. Chawla, Ranjna](https://www.amazon.com/s/ref%3Ddp_byline_sr_book_1?ie=UTF8&field-author=Ph.D.+Chawla%2C+Ranjna&text=Ph.D.+Chawla%2C+Ranjna&sort=relevancerank&search-alias=books) |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |

**Subject Coordinator:**

**Head of Curriculum Committee:**

**Department Head:**

**Faculty Dean:**

**Last update date**