**Course Description**

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| **Faculty** | **Pharmacy** | | | | | | |
| **Department** | Clinical pharmacy | | | **Level** | | | 7 |
| **Course** | Biochemistry for Pharmacy students | **Code** | 1702202 | **Prerequisite** | | | 0303105 |
| **Credit hours** | 2 | **Theoretical** |  | **Practical** | | |  |
| **Coordinator** |  | **Email** |  | | | | |
| **Teachers** | Dr. Rasha M. Hussein | **Emails** |  | | | | |
| **Lecture Time** |  | **Place** |  | | **Attendance mode** | Face to face | |
| **Semester** |  | **Preparation date** |  | | **Modification Date** |  | |

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| **Abstracted Course Description** |
| The biochemistry course is expected to give the students a firm biochemical background to assist them to pursue their studies on the biological, pharmaceutical and medical fields. This course gives students an introduction to the structure and classification of amino acids, organization of proteins structure and major processes of nucleic acids. In addition, the kinetics of enzyme activity and major functions of minerals and vitamins are discussed. |
| **Course Goals** |
| * provides students with knowledge on the basic principles of biological chemistry of cell, proteins, enzymes and nucleic acids * Students also will be able to identify the major classifications of amino acids, properties and purification techniques. * they will know the major sources of vitamins and minerals with focusing on the associated deficiency and toxicity diseases * Students also will understand the theories of enzyme kinetics, enzymes nomenclature and classifications and the the basic chemistry of carbohydrates and lipids. |

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| **CILOs** | | | | | |
| **Knowledge** | | | | | |
| A.1 Define the basic chemistry, types, and physicochemical properties of amino acids.  A.2 Describe the general properties of enzymes, nomenclature, kinetics, and activity regulation.  A.3 Know the structure, function, and replication of the nucleic acids. | | | | | |
| **Skills** | | | | | |
| B.1 Compare between the diseases associated with the deficiency or toxicity of vitamins and minerals.  B.2 Differentiate between hemoglobin and myoglobin in regard to structure, function, allosteric effectors and associated diseases. | | | | | |
| **Competencies** | | | | | |
| C.1 Compare the different methods used in purification of proteins.  C.1 Evaluate the function of the major organelles found in cells  C.3 Identify the major biological processes of DNA replication, transcription, and protein translation. | | | | | |
| **Learning Methods** | | | | | |
| Formal teaching lectures (Tools: board, overhead projector)  Assignments  Discussion  Projects | | | | | |
| **Evaluation Tools** | | | | | |
| **Mid-term exam**  **Quiz + project (in the form of power point presentation)**  **Final Exam** | | | | | |
| **Week** | **Topics** | **Learning methods** | **Evaluation tool** | **ILOs** | **Hours** |
| **1** | The molecular components of the cell organelles, function and types of mechanisms of membrane transport | Textbook and handouts |  | **A B** | **2** |
| 2.3 | Amino acids classifications.  Proteins physicochemical properties and organization.  Biochemical methods of protein purification. | Textbook and handouts |  | **A** | **2** |
| **4.** | Hemoglobin and myoglobin: structure, function, regulation and associated diseases | Textbook and handouts |  | **B** | **2** |
| **5,6** | Enzymes: classification, mechanism of enzymatic action, regulation of activity and kinetics. | Textbook and handouts |  | **A** | **2** |
| **7,8** | Nucleic acids: Classification and structure of nucleotides.  DNA replication, transcription and translation | Textbook and handouts | Exam | **B** | **2** |
| **9** | Chemistry of carbohydrates: Nomenclature, classification and functions | Textbook and handouts | Exam | **B** | **2** |
| **10** | Chemistry of lipids: Classifications, structure, and properties. | Textbook and handouts | **C** | **2** |
| **11** | Chemistry of lipids: Classifications, structure, and properties. |  |  |  | **2** |
| **12** | Biological minerals: sources, functions and associated diseases. | Textbook and handouts | Exam | **A C** | **2** |
| **13** | Vitamins: sources, functions and associated diseases. | Textbook and handouts | **C** | **2** |
| **14** | Vitamins: sources, functions and associated diseases. |  |  |  | **2** |
| **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 (Lippincott Illustrated Reviews Series) by Denise R. Ferrier * Illustrated Biochemistry by HARPER. * Biochemistry by Jeremy M. Berg. * Biochemistry by voet & voet |
| **References** | * Biochemistry (Lippincott Illustrated Reviews Series) by Denise R. Ferrier * Illustrated Biochemistry by HARPER. * Biochemistry by Jeremy M. Berg. * Biochemistry by voet & voet |
| **Recommended Readings** |  |
| **Electronic materials** |  |
| **Other websites** |  |

**Subject Coordinator:**

**Head of Curriculum Committee:**

**Department Head:**

**Faculty Dean:**

**Last update date**