

**Module (Course Syllabus) Catalogue**

**2023-2022**

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| **College/ Institute** | **Erbil Technical Health and Medical College** | |
| **Department** | **Physiotherapy** | |
| **Module Name** | **Biochemistry** | |
| **Module Code** | **BIO203** | |
| **Semester** | **Second Semester** | |
| **Credits** | **6** | |
| **Module type** | **Prerequisite Core Assist.**  0 | |
| **Weekly hours** | **2** |  |
| **Weekly hours (Theory)** | **( 2 )hr Class** | **( )hr Workload** |
| **Weekly hours (Practical)** | **( )hr Class** | **( )hr Workload** |
| **Lecturer (Theory)** | **lecturer Venos Saeed Abdullah** | |
| **E-Mail & Mobile NO.** | **venos.saeed@epu.edu.iq** | |
| **Lecturer (Practical)** |  | |
| **E-Mail & Mobile NO.** |  | |

**Course Book**

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| **Course Description** | This course serves as a foundation for biochemistry courses of the programme. It is designed to provide community health students with the knowledge of basic principles of biochemistry . The course required for understanding the students about the material action in humans body, their structure, amount present in body and change of them . This course also provides and helps the students to develop amount all chemical material in human body . The course focuses on development of skills related to hospitalization, vital signs and functions, asepsis and infection control, maintaining safe environment, personal hygiene and wound care. This course will prepare the students in performance of first aid and cardiopulmonary resuscitation for accident casualties. | | |
| **Course objectives** | On completion of this course the student will be able to:   * Understand development and basic biochemistry. * Understand action of materials in body. * Describe types of disease. * Recognize the basic unit of the body * Understand how to determine the amount of material in human body . | | |
| **Student's obligation** | • Students should attend the lectures .  • Students should take all exams, including daily quizzes and exam. | | |
| **Required Learning Materials** | Different forms of teaching will be used to reach the objectives of the course: power point presentations for the head titles and definitions and summary of conclusions, movies, and any other illustrations like, whiteboard, projector, data show, paper sheet if needed. lecture halls with computers equipment for lecture presentations, white board, overhead projector, posters  Theory teaching done by : lecture, group discussion, seminar, pair work, group work, role play, case-based learning. | | |
| **Assessment scheme** | ‌24% Mid Term (Theory )  8% Quiz , activity 2%  26% Assignment (report, paper, homework, seminar..)  40 % final theory | | |
| **Specific learning outcome:** | 1- Ability to develop general knowledge in physiotherapy and understand the subjects of the module.  2-Ability to understand and use, of biochemistry in physiotherapy.  3-Demonstrate the ability to think critically and solve problems.  4-Ability to apply knowledge in practice.  5-Ability to make reasoned discussion.  6-Demonstrates research skills to investigate, evaluate or solve problem. | | |
| **Course References‌:** | -Prof. Jacob, Anthikad (2004) biochemistry for Nurses , 2nd Edition  - R. Luxton, Msc, PhD, C.J. Pallister, Msc, PhD (1999) Clinical biochemistry ---- -Saiba. A. Nazanda, Maysoonls, S, younis (1986) general chemistry for medical technology students.  -Medical Biochemistry for Physiotherapy Students (2008),Harpreet - Kaur,Jagmohan Singh ,first edition .  . <http://www.biochemistry.com> | | |
| **Course topics (Theory)** | | **Week** | **Learning Outcome** |
| Introduction to biochemistry, uses of biochemistry, importance of biochemistry in medicine, physiology, pathology, nutrition deficiency, hormonal deficiency, importance of biochemistry in nutrition. | | 1 | 1&2 |
| Atoms, isotopes, acids, bases , uses of acids and bases, properties of acid and bases, salts ,buffer solution . | | 2&3 | 2&4 |
| Minerals, Biological action of calcium, phosphorus in human body, metabolism , absorption and deficiency , of calcium and phosphorus . | | 4&5 | 4&1 |
| Carbohydrate, classifications ,metabolism of it in body, biological important methods for saving it in body | | 6 | 3&6 |
| Organic chemistry , alkanes ,alkenes, alkynes, aldehydes, ketones, alcohols, ethers, physical and chemical properties . | | 7&8 | 1&2 |
| Lipids, types, placement in body ,cholesterol, its level in blood, importance | | 9 | 3&4 |
| Proteins, amino acids, types, metabolism, placement in body, evaluation of protein level. | | 10 | 5&6 |
| Water , urine, volume of urine, preservatives of urine, stones. | | 11 | 1&2 |
| Blood , Body fluids ,Normal range, Collection of blood samples , Blood hemolysis , Type of blood to be used (whole blood, serum, plasma , Blood clotting (mechanism) , Anticoagulants (heparin , oxalate, sodium citrate, EDTA ) | | 12 | 1,3&5 |
| **Practical Topics** | | **Week** | **Learning Outcome** |
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| **Questions Example Design**  **Q1- Choose the correct answer? (10 Marks)**  **1.The sucrose are………………… :**   1. **monosaccharides** 2. **oligosaccharides** 3. **disaccharides** 4. **polysaccharides**   **2.Amino acid is a main part for**  **a. carbohydrates**  **b. lipids**  **c. protein**  **d. nucleic acid**   |  |  | | --- | --- | | **Short answer** | 1. **Advantages of proteins: 1. 2. 3. (8 Marks)** 2. **Classification of polysaccharides :**   **1. 2. 3. 4.** |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Matching pairs** | **Match the following statements in the column A with the definitions in the column B:**  **(10Maks)**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **No** | **Answer** | **List A** |  | **List B** | | 1- |  | Breaking of bonds | A | Functions of lipids | | 2- |  | Main sources of energy in body is a | B | Cellulose | | 3- |  | Maintenance of acid, base, water and electrolyte balance | C | Hydrolases | | 4- |  | Structure of cell membranes is one | D | Carbohydrate | | 5- |  | Found in the cell walls of plants | E | Functions of blood | |      |  |  | | --- | --- | | **Definition** | **Define the following terms: (6 Marks)**   1. **carbohydrate** 2. **serum blood** 3. **digestion** |      |  |  | | --- | --- | | **Problem situation** | -**why we don’t eating the cellulose? (2Marks)** | | **Quiz** | **What is a chemical structural of maltose?** | | | | |
| **Extra notes:** | | | |
| **External Evaluator**  **I reviewed this course book for first year student of physiotherapy department. It cover the general concepts of biochemistry .I see that its suitable and contain the most important subjects that are necessary for them to learn important knowledge and skills in Biochemistry .**  **Lecturer :**    **Ahmed Abduljalal Abduljabbar**  **07504681242** | | | |