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Department of Biology

College of Education

Salahaddin University-Erbil

Subject: **Immunology**

Course Book – (Year: 4)

Lecturer's name: **Sarhang H. Azeez -Ph.D.**

Academic Year: **2021/2022**

**Course Book**

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| **1. Course name** | Immunology |
| **2. Lecturer in charge** | Sarhang H. Azeez |
| **3. Department/ College** | Biology/College of Education |
| **4. Contact** | **E-mail**: Sarhang.azeez@su.edu.krd  **Tel**: 0750 4624662 |
| **5. Time (in hours) per week** | **(4 hrs.)** |
| **6. Office hours** |  |
| **7. Course code** | **EdB0402** |
| **8. Teacher's academic profile** | I have finished High school in 2003 and attended to College of Education, Biology Department/Salahaddin University /Erbil during 2006-2007, and I was at the top students in Biology class and college level with grade 82.396.  In November 2007 started working as an official employee in the biology department as an assistant biologist which my role was to assist the head of the biology department and help lecturers in biology laboratories and teach students the practical parts. I got my master’s degree and immunology in 2012 with a grade of very good. Then I got my Ph.D. in immunology as well in February 2020.  My academic title is Lecturer now, and I have taught various courses during my career as a lecturer, including immunology, pathogenic bacteria and zoology |
| **9. Keywords** | **Immunity, Innate, acquired, vaccines** |
| 10. Course overview:  The objective of this course is to instill a broad based knowledge of the science of immunology . Immunology is a science that studies immunity. Historically, immunity has been understood as a defense against, or resistance to, contagious (infectious) diseases. It has become apparent, however, that the mechanisms that confer protection against the above diseases also operate when a body mounts a reaction against some innocuous substances. Such a reaction is triggered when certain substances that are not made in the body (‘‘foreign’’ substances) invade the body from outside. The mechanisms of immunity can protect against diseases that might be caused by the foreign agents but, on the other hand, these same mechanisms can themselves injure the body and cause disease. Therefore, immunity was redefined as a reaction against foreign substances, including – but not limited to – infectious microorganisms. This reaction may or may not be protective. This reaction is quite complex, involves many different cells, molecules, and genes (collectively termed the immune system), The response of the immune system to the introduction of foreign substances is  called the immune response.  Immunity is a part of a complex system of defense reactions of the body. These defense reactions can be innate or acquired. Innate (or natural) immunity refers to the work of mechanisms that pre-exist the invasion of foreign substances, while acquired immunity refers to a reaction that is caused by the invasion of a certain foreign substance. The ability of the immune system to ‘‘remember’’ an encounter with an antigen and to develop a qualitatively better response to it is called the immune memory. This feature is a paramount property of specific immunity. | |
| **11. Course objective:**  **The course has two primary objectives:**   * The main objectives of this course are, students should know something about the immunity and the arms of immunity ,component of the immune system, how our immune system work in disease and in health, antigen and their types , immunoglobulin and their classes, the different pathway of complement activation, cytokine and the mode of their action ….. and other different subjects. * We will dissect the particular mechanisms of immunity and characterize the elements of the immune system and the properties of immune responses. The immune system—it is the only thing standing between us and a sea of microbial predators that could send us to an early and ugly death. microbes. | |
| **12. Student's obligation**  **The role of students and their obligations throughout the academic year include:**  **A. Quizzes and daily activities and seminar**  **B. 1st examination**  **C. 2nd examination**  **D. 3rd examination** | |
| **13. Forms of teaching**  Different forms of teaching will be used to reach the objectives of the course:  Using projectors to view PowerPoint slides and laser pointers for further explanation and using the whiteboard and coloured pens to illustrate the lab notes or slide's preparation. | |
| **14. Assessment scheme**  **Course grade**  **The following assignments will determine the grade: Quizzes, activities, and participating in lab works, daily questions, and examinations during the year.**  **No.** Exam (Evaluation) Marks  1. Quizzes and daily activities 3%  2. 1st Exam 10%  3. 2nd Exam 10%  4. 3rd exam 10%  **5. Total Scores %‌** | |
| 15. **Student learning outcome:**  **After completing this course, students should be able to describe, identify, and/or explain:**   1. Introduction to Immunity. 2. Body immune system. 3. Types of immune system. 4. Vaccines and vaccination 5. Antigen and antibody interaction 6. Phagocytosis 7. Immunity against infection. 8. Hypersensitivity | |
| **16-Course Reading List and References‌**  1-Clark, W.R. (2007). In Defense of self. How the immune system really works in managing health and disease. 1stEdition. Oxford University Press, New York.  2-Shetty, N. (2005). Immunology. Introductory textbook. 2nd Edition. New Age International (P) Limited Publisher. New Delhi.  3-Ezekowitz, R.A.B. and Hoffmann, J.A. (2003). Innate immunity. 2nd Edition. Humana Press, Totowa. | |
| **17. The Topics: Animal physiology lab Lecturer's name: Sarwar N. Jafar** | |
| **18. Topics** | |
| |  |  | | --- | --- | | Topics | Weeks | | Week 1: Immunology, an introduction & history of immunology | Sarhang H. Azeez  Time: (4 hrs.) | | Week 2: Vaccination | Sarhang H. Azeez  Time: (4 hrs.) | | Week 3 & 4 : Component of innate immunity | Sarhang H. Azeez  Time: (4 hrs.) | | Week 5: Phagocytosis | Sarhang H. Azeez  Time: (4 hrs.) | | Week 6:Extracellular killing (Natural killer cell) | Sarhang H. Azeez  Time: (4 hrs.) | | Week 7: Component of immune system | Sarhang H. Azeez  Time: (4 hrs.) | | Week 8:Antigen | Sarhang H. Azeez  Time: (4 hrs.) | | Week 9 – First examination | Sarhang H. Azeez  Time: (4 hrs.) | | Week 10--& 11: Antibody | Sarhang H. Azeez  Time: (4 hrs.) | | Week 12 &13:Complement | Sarhang H. Azeez  Time: (4 hrs.) | | Week 14: Cytokines | Sarhang H. Azeez  Time: (4 hrs.) | | Week 15: Immunity to infection | Sarhang H. Azeez  Time: (4 hrs.) | | Week 16: Hypersisitivity | Sarhang H. Azeez  Time: (4 hrs.) | | |
| **19. Extra notes:** | |
| **20. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ** | |