



**Department of .....Biology.....**

**College of ...Science.....**

**University of ...Duhok.....**

**Subject: Immunology**

**Course Book – (Year 4)**

**Lecturer's name: Ali Yahya Saeed<sup>PhD</sup>**

**Academic Year: 2022/2023**

# Course Book

<b>1. Course name</b>	<b>Immunology</b>
<b>2. Lecturer in charge</b>	<b>Dr.Ali Yahya Saeed</b>
<b>3. Department/ College</b>	<b>Biology/Science</b>
<b>4. Contact</b>	<b>e-mail:ali.saeed@uod.ac</b> <b>Tel: (optional)</b>
<b>5. Time (in hours) per week</b>	<b>Theory: 2</b> <b>Practical: 2</b>
<b>6. Office hours</b>	
<b>7. Course code</b>	
<b>8. Teacher's academic profile</b>	<p>After I obtained my M.Sc in the field of Microbiology/Virology in 1992 I directly joined University of Duhok which was established in the same year. I appointed officially at the college of Medicine and taught subject Biology, 2<sup>nd</sup> semester both theory and practice. In second year I taught Histology both theory and practice and spent hundreds of hours reading and viewing microscopic slides in association with color atlas. In 3<sup>rd</sup> year I taught Microbiology including bacteriology, Virology, Parasitology and even I shared with other lecturers in the subject of Physiology. I taught subject Microbiology both theory and Practice till 2000. Beside my teaching I practiced in the Azadi Laboratory and achieved several researches. During this period I was head of the department of Microbiology and participated in many activities like member of examination committee and organizer of University anniversaries. In 2000 I moved to the college of Veterinary Medicine there I taught Microbiology till 2014. During this period I was responsible for the high education issues and head of the Duhok Veterinary Research Center. Many researches were achieved in the center in corporation with Borstel Institute/Germany and General Directorate of Veterinary. I was also organizer of the workshop held in Erbil. In 2012 I moved to the department of Biology/College of Science as a teacher of the subject Microbiology, Medical bacteriology, Immunology and Virology. I graduated two M.Sc student in the field of Immunology and taught courses of medical microbiology, General Microbiology and Immunology to both Ph.D and M.Sc students. Now I am supervising two M.Sc students and one Ph.D student. I prepared illustrated manual of practical microbiology for students and all of the lectures provided in PDF and PPP Formats.</p>
<b>9. Keywords</b>	<b>Immunology</b>

### **10. Course overview:**

One of the important subject to be studied in the department of Biology is immunology because this science connected with various disciplines like Bacteriology, virology, mycology, parasitology and histopathology. Immune system one of the fascinating body system through which our bodies can fight many harmful intruders from our environment or through food and water. Like other body system it composed of organs, tissues and cells as wells as special communication signals called cytokines. The importance of this system becomes obvious during certain maladies which suppress it like HIV infection and in cancer patient. Beside of in vivo beneficial aspects, this science can be employed as a tool of many diagnostic tests which collectively called serological tests. Serological tests are commonly used for diagnosis of many infections and malignant cancers through immunohistochemistry method. The tests for blood cross match and histocompatibility tests are used before blood transfusion and tissue transplantation. There are many diseases arise due to the defect in the regulation of the immune responses called autoimmune diseases.

### **11. Course objective:**

The course has many objectives

- 1- To be able to understand the common terms used in immunology.
- 2- To know the differences between innate and adaptive immunity.
- 3- To be able to understand both branches of specific immunity humoral and cell mediated types.
- 4- To be able to know what are the organs, tissues and cells of this system
- 5- To be able to understand the role of cytokines in the immunoregulation
- 6- To be able to know how both humoral and cell mediated immunities activated and regulated.
- 7- To know what happen if the immune responses become disturbed and association of certain types of diseases with immunity.
- 8- To know how CD markers of the T cells are used for their development, differentiation and effectiveness.

### **12. Student's obligation**

**At the beginning of the first lecture before going to the subject I make an agreement with students that will insure their success. According to this agreement I want from students to**

- 1- Regular attendance
- 2- Respect time of lecture
- 3- Active participation of the lecture
- 4- Do not feel any hesitation to ask me.
- 5- Criticize my teaching method in a polite way and find out another more suitable teaching method because the lecture for them not for me.
- 6- Respect the opinions of each other
- 7- Remember that you will be responsible for the next generations so be sincere and honest in your duties.

Then I ask them what do you want from me and their answer will be open during the course

### **13. Forms of teaching**

The lectures will present mainly in the form of power point format but not in details but in the form of headlines supported by pictures and illustrating diagrams. Details will be

explained on the whiteboard. Short Video will also possible. Students can also prepare lectures and give by themselves. Case presentation and discussion also will be presented.

#### 14. Assessment scheme

Assessment will be divided into two parts; class activity like following think, pair and share strategy, directing of challenge questions at the end of each lecture, discussion of the previous lectures with quizzes. Written exam with predetermined time and the questions will be a mixture of different styles like multiple choice questions, true and false, justification, fill in the blanks and short essay. The degree will be 40% (25% theory and 15% practice). Each Theory and Practical marks will be distributed into class attendance, class activities and Quizzes. The final examination includes both theory and practice and will be in 60% in which 40% for theory and 20% for practice. The theoretical final examination is usually two hours and covering all studied topics and usually consist of multiple-choice questions, explanation, justification and short essays.

#### 15. Student learning outcome:

Mentioned in paragraph 11.

#### 16. Course Reading List and References:

- 1- Medical Microbiology, 2013, by Jawetz, Melnick and Adelbergs.
- 2- The short textbook of Medical Microbiology by Satish Gupte, 10<sup>th</sup> Ed.2010
- 3- Microbiology an Introduction by Tortora G.J; Funke B.R., and Case C.I. 2010.
- 4- Essential Microbiology by Stuart Hogg, 2005.
- 5- KUBY Immunology by Owen JA., Punt S., Strandford PP. 2013. W.H.Freeman and Company, New York.
- 6- Essential Immunology by Roitt IR., Delves PJ. 2004. Black well Science.
- 7- Cellular and molecular immunology by Abbas AK., Lichtman AH., Pillai S. 6<sup>th</sup> Ed.2007,Saunders Elsevier.

#### 17. The Topics:

#### Lecturer's name

Course specification

Dr.Ali Yahya Saeed

#### Objectives:

Time:2 hrs

Description of the course

Immune system overview

Dr.Ali Yahya Saeed

#### Objectives:

Time: 4 hrs

To show the student role of the immune system in both protection and diseases as well as to make comparison between innate and specific immunities

Innate immunity part I <b>Objectives:</b> -To study the main characteristics of the innate immunity and their mechanical, chemical barriers	Dr.Ali Yahya Saeed Time : 2 hrs
Innate immunity Part II <b>Objectives:</b> To study the cellular components of the innate immunity focusing on phagocytosis	Dr.Ali Yahya Saeed Time : 2 hrs
Complement system <b>To study the following</b> 1- Components 2- Pathways of activation 3- Regulation 4- Associated diseases	Dr.Ali Yahya Saeed Time : 2 hrs
Antigen <b>Objectives:</b> - To define antigen, immunogen and haptens - Types of antigens - Factors influencing the antigens	Dr.Ali Yahya Saeed Time : 4 hrs
Development of lymphocytes <b>Objectives</b> - To study the steps of B cells maturation and selection - To study the steps of T cells maturation and selections	Dr.Ali Yahya Saeed Time : 2 hrs
Cell mediated immunity <b>Objectives</b> - To study steps of cells mediated immunity against obligate and facultative obligate intracellular pathogens	Dr.Ali Yahya Saeed Time : 2 hrs
Humoral immune response <b>Objectives</b> To study steps of antibody production	Dr.Ali Yahya Saeed Time : 2 hrs
Hypersensitivity reactions Type I,II,III and IV <b>Objectives</b> - To study mechanisms and diseases associated with them	Dr.Ali Yahya Saeed Time : 2 hrs
Tolerance and autoimmune diseases <b>Objectives</b> -To study mechanisms of tolerance and autoimmune diseases	Dr.Ali Yahya Saeed Time : 2 hrs
Tumor immunology <b>Objectives</b> - To study the role of immune system against tumors and immunological markers used for their diagnosis	Dr.Ali Yahya Saeed Time : 2 hrs
<b>18. Practical Topics</b>	

Lab# 1 Introduction to Immunology	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 2 hrs
Lab.#2 Serological tests - types of agglutination tests	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 2 hrs
Lab.#3 Widal test	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 2 hrs
Lab.#4. Serological Diagnosis of Brucellosis	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 2 hrs
Lab.#5. Types of agglutination tests - CRP test	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 2 hrs
Lab.#6. Pregnancy test	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 2 hrs
Lab.#7. Complement test	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 2 hrs
Lab.# 8 &9. ELISA technique	Dr. Ali Yahya Saeed Mr. Hadi Hussein Hamad Time : 4 hrs
<b>19. Examinations:</b> <b>1. Compositional:</b>  <b>2- Choose the most appropriate answer</b>  <b>3.-True or false type of exams:</b>  <b>4- Write true (T) for correct answers and false (F) for wrong answers</b>	
<b>20. Extra notes:</b> 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

## پیداچوونهوهی هاوہل

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).*

ئہم کورسبوو کہ دہبیت لہ لایہن هاوہلیکی ئەکادیمیہوہ سہیر بکریت و ناوہرۆکی بابہتہکانی کورسہکە پەسەند بکات و جہند ووشەیک بنووسیت لەسەر شیاوی ناوہرۆکی کورسہکە و واژووی لەسەر بکات.  
هاوہل ئەو کەسەیکە کہ زانیاری ھەبیت لەسەر کورسہکە و دہبیت پلہی زانستی لە ماموستا کەمتر نەبیت.