

Course E-Syllabus

Us 1	Course title	Immunology
2	Course number	0344443
3	Credit hours	3 hours (2 hrs theory + 1 hr practical)
	Contact hours (theory, practical)	(2 hrs theory + 3 hrs practical)
4	Prerequisites/corequisites	0304321
5	Program title	Bsc in Biology
6	Program code	44
7	Awarding institution	The University of Jordan
8	School	Science
9	Department	Biological Sciences
10	Level of course	3 th
11	Year of study and semester (s)	First semester 2022/2023
12	Final Qualification	Optional
13	Other department (s) involved in teaching the course	NA
14	Language of Instruction	English
15	Teaching methodology	<input checked="" type="checkbox"/> Blended <input type="checkbox"/> Online
16	Electronic platform(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
17	Date of production/revision	14 th Oct 2022

18 Course Coordinator:

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19 Other instructors:

Name: **Mrs Ala' Yaseen**

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Phone number:

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20 Course Description:

This course aims to introduce students to basic concepts of immunology. Also, to acquaint students with immunological implications in medicine, research and pharmaceutical industry. The theoretical part of the course will deal with the basic component of the immune system, mechanisms of immune response both humoral and cell mediated. In addition, the immune response in health and in disease. The practical part of the course aims to provide hands on experience in assessing various immunological reactions and their use in diagnostic medicine as well as in biomedical research. Certain assays, which are long-term or too expensive, will only be demonstrated to familiarize the students.

21 Course aims and outcomes:

A- Aims:

The aim of this course to provide understanding of the basic aspects of immunology. The first few weeks the focus will be on innate immune response and inflammation. Next, the course will be on acquired immunology covering the cellular and molecular immunology. Finally, the main area of study will be about immunity and disease and the diagnostic methods.

B- Intended Learning Outcomes (ILOs):

Upon successful completion of this course, students will be able to:

1. Outline the key components of the innate and adaptive immune responses.
2. Describe which cell types and organs are involved in an immune response
3. Identify the role of antigen presenting cells, lymphocytes, and phagocytic cells in immune responses.
4. Identify the structure, function, and characteristics of immunoglobulins
5. Describe the basis structure of the cellular receptors and discuss their interactions during an immune response.
6. Describe the human adaptive immune response and the role that inheritance genes of the immune system play in disease susceptibility; how immunological homeostasis is maintained by regulatory cells, and how immunological dysfunction can lead to disease.
7. Describe the various outcomes in a settings such as autoimmunity, transplantation and allergies
8. Differentiate between different Hypersensitivity states
9. Demonstrate proficiency in tumor-immune system interactions: T and B cell responses to cancer.

22. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	Overview Of The Immune System	Class room	Exam	Coico
	1.2	cell types and organs are involved in an immune response	Class room	Exam	Coico
	1.3				

2	2.1	Elements Of Innate And Acquired Immunity	Class	Exam	Coico
	2.2	key components of the innate and adaptive immune responses	Class	Exam	Coico
	2.3				
3	3.1	Immunogens And Antigens	Class room	Exam	Coico
	3.2	Role of antigen presenting cells, lymphocytes, and phagocytic cells in immune responses.	Class room	Exam	Coico
	3.3				
4	4.1	Antibody Structure And Function	Class room	Exam	Coico
	4.2				
	4.3				
5	5.1	The Genetic Basis Of Antibody Structure	Class room	Exam	Coico
	5.2	Germline and somatic configurations of antibody	Class room	Exam	Coico
	5.3				
6	6.1	Biology Of The B Lymphocyte	Class room	Exam	Coico
	6.2	Stages of B cell development and differentiation	Class room	Exam	Coico
	6.3				
7	7.1	Role Of The Major Histocompatibility Complex In The Immune Response	Class room	Exam	Coico
	7.2	MHC class I and MHC class II molecules and genetic loci	Class room	Exam	Coico
	7.3				
8	8.1	Biology Of The T Lymphocyte	Class room	Exam	Coico
	8.2	Categories of T cells and their functions	Class room	Exam	Coico

	8.3				
9	9.1	Activation And Function Of T And B Cells	Class room	Exam	Coico
	9.2	Basic structure of the cellular receptors and their interactions during an immune response.	Class room	Exam	Coico
	9.3				
10	10.1	Tolerance And Autoimmunity	Class room	Exam	
	10.2	Various outcomes in a settings such as autoimmunity, transplantation and allergies	Class room	Exam	Abbas
	10.3				
11	11.1	Transplantation	Class room	Exam	Abbas
	11.2	Various outcomes in a settings such as autoimmunity, transplantation and allergies	Class room	Exam	Abbas
	11.3				
12	12.1	Hypersensitivity: I	Class room	Exam	Abbas
	12.2	Hypersensitivity: II	Class room	Exam	Abbas
	12.3				
13	13.1	Hypersensitivity:III	Class room	Exam	Abbas
	13.2	Hypersensitivity: IV	Class room	Exam	Abbas
	13.3				
14	14.1	Tumor immunology	Class room	Exam	Abbas
	14.2	T and B cell responses to cancer.	Class room	Exam	Abbas
	14.3				
15	15.1	Diagnostic and research tools in immunology	Class room	Exam	Abbas
	15.2				
	15.3				

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz...etc

23 Evaluation Methods:

QF-AQAC-03.02.1.3

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
Midterm exam	20%	Material covered (1-7 weeks)	7 th week	Class room
Final exam	50%	All topics are included	14 th week	Class room
Lab final exam	15%	All topics are included	14 week	Class room
Reports and Quizzes	15%	Enzyme Linked Immunosorbent Assay (ELISA).	Week 5	Class room

24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc):

Student are **required** to have access to the following:

- A computer (with webcam & microphone)
- Active and dependable internet connection
- E-Learning website (not the mobile application) works smoothly on their computer.
- Make sure to install the application (platform) which will be used by your instructor to conduct the live meetings (Microsoft Teams).

25 Course Policies:

A- Attendance policies:

Students are expected to attend class and to complete all the assignments. Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

B- Absences from exams and handing in assignments on time:

The student is responsible for providing satisfactory evidence to the instructor to substantiate the reason for absence within 3 days of the last date of the absence. The excuse should be acceptable and approved by the Dean. If the absence is excused, the instructor must either provide the student an opportunity to make up any

quiz, exam or other work that contributes to the final grade by a date agreed upon by the student and instructor.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

A range of possible sanctions exist for cases of academic dishonesty. In addition to an academic penalty (determined by the faculty member), disciplinary sanctions may also be applied.

E- Grading policy:

Midterm Exam:	20%
Final Exam:	50%
Lab Final	15%
Lab Reports + Attitude	15%

F- Available university services that support achievement in the course:

Library and Internet resources

26 References:

A- Required book (s), assigned reading and audio-visuals:

Coico, Richard, and Geoffrey Sunshine. Immunology: a short course. 6th 2009. Wiley-Blackwell.

B- Recommended books, materials, and media:

1. Books:

Abbas, A. K., Lichtman, A. H., & Pillai, S. (2010). Cellular and molecular immunology. Philadelphia: Saunders/Elsevier

2. Journals:

Immunity

Annual Reviews of Immunology

Journal of Immunobiology

27 Additional information:

Practical work (10 Experiment)

Lab # 1. The Immune System Organs and Cells (Histology and Anatomy).

Lab # 2. Agglutination Reactions I

Lab # 3. Agglutination Reactions II

Lab # 4. Protein Electrophoresis (Serum Protein Electrophoresis). **-Report 1**

Lab # 5.	Enzyme Linked Immunosorbent Assay (ELISA).	
Lab # 6.	Double Immunodiffusion (Ouchterlony).	-Report 2
Lab # 7.	Isolation of Human Peripheral Blood Mononuclear Cells.	
Lab # 8.	Mixed Lymphocyte Reaction.	-Report 3
Lab # 9.	Flow Cytometry	
Lab # 10.	Monoclonal Antibody Technology	
Reference:		
Current Protocols in Immunology		
Online ISBN: 9780471142737		
DOI: 10.1002/0471142735		
Some of the experiments state the principle of the routine serologic procedures performed in the clinical laboratory. Student will be able to read and correctly follow instructions provided in reagent package inserts, as needed, to obtain valid results.		
Attendance to practical classes is 100% compulsory		

Name of Course Coordinator: **Dr. Suzan Matar** Signature: ---| *SUZAN MAtar* -- Date: **14th Oct 2022**

Head of Curriculum Committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of Curriculum Committee/Faculty: ----- Signature: -----

Dean: ----- Signature: -----