



**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

**Immunology**

**0344443**

**By**

**Dr. Suzan Matar**

1	Course title	Immunology
2	Course number	0344443
3	Credit hours (theory, practical)	2 Theory , 1 Practical
	Contact hours (theory, practical)	2 Theory, 3 Practical
4	Prerequisites/corequisites	0304321
5	Program title	Biology and Medical Laboratory Sciences
6	Program code	0304
7	Awarding institution	The University of Jordan
8	Faculty	Faculty of Science
9	Department	Department of biological sciences
10	Level of course	4
11	Year of study and semester (s)	4 years equivalent to 8 semesters
12	Final Qualification	Biologist and clinical laboratory technicians
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	First Semester 2016

#### 16. Course Coordinator:

Office numbers, B104  
 Office hours, 12-1 Sun , 10-11 Mon and Wed.  
 Phone numbers: 5355000 ext 22238  
 email addresses : S.mattar@Ju.edu.jo

#### 17. Other instructors:

*Office numbers, office hours, phone numbers, and email addresses should be listed.*

#### 18. 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.

## 1. 19. Course aims and outcomes:

2.

<b>A- Aims:</b>
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>B- Intended Learning Outcomes (ILOs):</b> Upon successful completion of this course students will be able to ...
Outline the key components of the innate and adaptive immune responses.
Describe which cell types and organs are involved in an immune response
Identify the role of antigen presenting cells, lymphocytes, and phagocytic cells in immune responses.
Identify the structure, function, and characteristics of immunoglobulins
Describe the basis structure of the cellular receptors and discuss their interactions during an immune response.
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.
Describe the various outcomes in a settings such as autoimmunity, transplantation and allergies
Differentiate between different Hypersensitivity states

## 20. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved Ilos	Evaluation Methods	Reference
Overview Of The Immune System	1	Dr. Suzan Matar	Describe which cell types and organs are involved in an immune response	Examination	<b>Ch 1</b> Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
Elements Of Innate And Acquired Immunity	2	Dr. Suzan Matar	Outline the key components of the innate and adaptive immune responses.	Examination	<b>Ch 2 and Ch 3</b> Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
Immunogens And Antigens	3	Dr. Suzan Matar	Identify the role of antigen presenting cells, lymphocytes, and phagocytic cells in immune responses.	Examination	<b>Ch 4</b> Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.

Antibody Structure And Function	4	Dr. Suzan Matar	Identify the structure, function, and characteristics of immunoglobulins	Examination	Ch 5 Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
The Genetic Basis Of Antibody Structure	5	Dr. Suzan Matar	Distinguish between the germline and somatic configurations of antibody 3.	Examination	Ch 7 Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
Biology Of The B Lymphocyte	6	Dr. Suzan Matar	Distinguish between stages of B cell development and differentiation	Examination	Ch 8 Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
Midterm Exam					
Role Of The Major Histocompatibility Complex In The Immune Response	8	Dr. Suzan Matar	Recognize the role of major histocompatibility complex (MHC) molecules in immune responses  Distinguish between MHC class I and MHC class II molecules and genetic loci	Examination	Ch 9 Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
Biology Of The T Lymphocyte	9	Dr. Suzan Matar	Compare and contrast the three categories of T cells and explain how they function	Examination	Ch 10 Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
Activation And Function Of T And B Cells	10	Dr. Suzan Matar	Describe the basis structure of the cellular receptors and discuss their interactions during an immune response.	Examination	Ch 11 Coico, Richard, And Geoffrey Sunshine. Immunology: A Short Course. 6 <sup>th</sup> 2009. Wiley-Blackwell.
Tolerance And Autoimmunity	11	Dr. Suzan Matar	Describe the various outcomes in a settings such as autoimmunity, transplantation and allergies	Examination	Ch 14 <b>Abbas, A. K.,</b> Lichtman, A. H., & Pillai, S. (2010). <i>Cellular And Molecular Immunology</i> . Philadelphia: Saunders/Elsevier
Transplantation	12	Dr. Suzan Matar	Describe the various outcomes in a settings such	Examination	Ch 16 Abbas, A. K., Lichtman, A. H., &

			as autoimmunity, transplantation and allergies		Pillai, S. (2010). <i>Cellular And Molecular Immunology</i> . Philadelphia: Saunders/Elsevier
Hypersensitivity: Type I	13	Dr. Suzan Matar	Describe the cellular, molecular and the mechanism of hypersensitivity I	Examination	Ch 19 Abbas, A. K., Lichtman, A. H., & Pillai, S. (2010). <i>Cellular And Molecular Immunology</i> . Philadelphia: Saunders/Elsevier
Hypersensitivity: Types II	13	Dr. Suzan Matar	Describe the cellular, molecular and the mechanism of hypersensitivity II	Examination	Ch 18 Abbas, A. K., Lichtman, A. H., & Pillai, S. (2010). <i>Cellular And Molecular Immunology</i> . Philadelphia: Saunders/Elsevier
Hypersensitivity: Types III	14	Dr. Suzan Matar	Describe the cellular, molecular and the mechanism of hypersensitivity III	Examination	Ch 18 Abbas, A. K., Lichtman, A. H., & Pillai, S. (2010). <i>Cellular And Molecular Immunology</i> . Philadelphia: Saunders/Elsevier
Hypersensitivity: Types IV	14	Dr. Suzan Matar	Describe the cellular, molecular and the mechanism of hypersensitivity IV	Examination	Ch 18 Abbas, A. K., Lichtman, A. H., & Pillai, S. (2010). <i>Cellular And Molecular Immunology</i> . Philadelphia: Saunders/Elsevier

## 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

Lectures, laboratory demonstrations, laboratory work, assignments and interactive forms.

## 22. Evaluation Methods and Course Requirements:

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

This course will be assessed in the following ways:

- Laboratory reports contribute to the assessment in this course.
- Midterm and end of semester examinations test a student's comprehension of the concepts and material presented in classes.

### 23. 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:

<b>Midterm Exam:</b>	<b>35%</b>
<b>Final Exam:</b>	<b>35%</b>
<b>Lab Final</b>	<b>15%</b>
<b>Lab Reports + Attitude</b>	<b>15%</b>

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

**Library and Internet resources**

### 24. Required equipment:

Data show for theory and practical lectures.

Devices, kits, reagents and animals (rats and mice) for the practical Work.

**25. References:**

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

**Coico, Richard, and Geoffrey Sunshine. Immunology: a short course. 6<sup>th</sup> 2009. Wiley-Blackwell.**

B- Recommended books, materials, and media:

**4. Books:**

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

**Journals:**

**Immunity  
Annual Reviews of Immunology  
Journal of Immunobiology**

**26. Additional information:**

Practical work (10 Experiment)

<b>Lab # 1.</b>	The Immune System Organs and Cells (Histology and Anatomy).	
<b>Lab # 2.</b>	Agglutination Reactions I	
<b>Lab # 3.</b>	Agglutination Reactions II	
<b>Lab # 4.</b>	Protein Electrophoresis (Serum Protein Electrophoresis).	<b>-Report 1</b>
<b>Lab # 5.</b>	Enzyme Linked Immunosorbent Assay (ELISA).	
<b>Lab # 6.</b>	Double Immunodiffusion (Ouchterlony).	<b>-Report 2</b>
<b>Lab # 7.</b>	Isolation of Human Peripheral Blood Mononuclear Cells.	
<b>Lab # 8.</b>	Mixed Lymphocyte Reaction.	<b>-Report 3</b>
<b>Lab # 9.</b>	Flow Cytometry	
<b>Lab # 10.</b>	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: الدكتورة سوزان مطر Signature: ----- Date: 12/ 01/ 2016

Head of curriculum committee/Department: الاستاذة الدكتورة سوسن العوران Signature: -----

Head of Department: الدكتورة هناء العبوس Signature: -----

Head of curriculum committee/Faculty: الاستاذة الدكتورة أمل العابودي Signature: -----

Dean: الاستاذ الدكتور صالح محمود Signature: -----

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Assistant Dean for Quality Assurance  
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