



## University of Nicosia, Cyprus

<b>Course Code</b> BIOL-241	<b>Course Title</b> Immunology	<b>ECTS Credits</b> 6
<b>Department</b> Life and Health Sciences	<b>Semester</b> Spring	<b>Prerequisites</b> BIOL-101 and BIOL-102 General Biology I and II
<b>Type of Course</b> Required	<b>Field</b> Biology, Immunology	<b>Language of Instruction</b> English
<b>Level of Course</b> 1 <sup>st</sup> Cycle	<b>Year of Study</b> 2 <sup>nd</sup> or 3 <sup>rd</sup>	<b>Lecturer</b> Dr. Nicolaou Stella
<b>Mode of Delivery</b> face-to-face	<b>Work Placement</b> N/A	<b>Co-requisites</b> None

### Objectives of the Course:

This course serves as an introductory course in Immunology for all biology majors and minors. Students will acquire a basic understanding of current knowledge of the immune system, which is required for advanced studies in immunology. The main objectives of the course are to:

- Introduce the molecular and cellular players involved in immunity, and discuss how they interact in defending the body against infections and cancer.
- Use examples to demonstrate and explain the importance of these interaction in acquiring the ability to recognize antigens and how these players are involved in autoimmune diseases, allergy and transplant rejection.
- Review through literature papers some of the tools and techniques used in immunology and their practical applications like vaccination, immune disease diagnosis and treatment.
- Discuss the value of scientific research in the field of immunology.

### Learning Outcomes:

After completion of the course students are expected to be able to:

1. Name and describe the principal organs, cells and molecules of the human immune system and their functions.
2. Distinguish the components involved in the molecular processes of humoral and cellular immune response and describe the nature of soluble mediators, and the regulatory controls and mechanisms of the immune system.
3. Compare and discuss the aspect of innate and acquired immunity and describe the molecular basis of immunotolerance and immune hypersensitivity.

4. Explain the molecular basis of autoimmune diseases and the consequences of immunodeficiency disorders.
5. Associate biotechnological applications based on immunology principles to disease diagnosis/treatment.
6. Identify relevant scientific literature and report orally and in writing on related issues.

**Course Contents:**

1. Overview of Immunity and the Immune System; Cells, Tissues, and Organs of the Immune System
2. Antibodies and Antigens
3. Maturation of B Lymphocytes and Expression of Immunoglobulin Genes
4. The Major Histocompatibility Complex
5. Antigen Processing and Presentation
6. T-Lymphocyte Antigen Recognition and Activation
7. B-Lymphocyte Activation and Antibody Production
8. Immunologic Tolerance
9. Cytokines
10. Innate Immunity
11. Effector Mechanisms of Cell-Mediated Immunity
12. Effector Mechanisms of Humoral Immunity
13. Immunity to Microbes
14. Transplantation Immunology; Immunity to Tumors
15. Autoimmunity and Autoimmune Diseases; Immunodeficiencies

**Learning Activities and Teaching Methods:**

Lectures; Literature reading and discussions, cooperative learning activities

**Assessment Methods:**

Assignments, Tests and Mid-term Exam; Final Exam

**Required Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
G. Pinchuk	Schaum's Outline of Immunology	McGraw Hill	2002	ISBN: 0-07-137366-7

**Recommended Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
1. A.K. Abbas, J.S. Pober, A.H.	Cellular and Molecular Immunology	W B Saunders	2003, 5 <sup>th</sup> ed.	ISBN: 0721600085
2. Emilio Emini	The Human Immunodeficiency	Princeton University Press	2001	ISBN-10: 0691004544

	Virus: Biology, Immunology, and Therapy.			
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