

**Course Objectives:**

The objectives of the course are:-

1. To provide the knowledge about the components and role of the immune system.
2. To provide students with knowledge of different mechanisms of the immune system.
3. The students will be able to describe immunological response and how it is triggered and regulated.
4. To describe the roles of the immune system in both maintaining health and contributing to diseases.

**Course learning outcomes:**

Upon successful completion of the course, the student will be able to:

1. **Explore** the basic knowledge of the mechanisms of immune system
2. **Describe** the concepts about the role of immune system.
3. **Interpret** the problems using immunological techniques for diagnosis of immune disorders.
4. **Identify** the problems using immunological diagnostic tools.
5. **Detect** the problems using the same techniques for other disorders.
6. **DEMONSTRATE** individually the ELISA and other Assays/Tests.

### **Course Contents:**

Major histocompatibility complex (MHC). General organization and inheritance of MHC. Class I MHC molecules and genes. Polymorphism of class I and II MHC genes, class III MHC molecules, mapping of MHC and its expression. Antigen processing and presentation; self MHC restriction of T-cells role of Ag presenting cells. T-cell receptor organization and rearrangement of TCR genes T-cell receptor complex, TCR (α) 3 T-cell accessory membrane molecules TCR-MHC-Antigen interaction. Cytokines; General properties discovery and purification, structure and function, receptors, antagonists, regulation and Biological activity of TH 1 and TH-2 subsets. Generation of humoral immune responses. Kinetics, experimental systems, identification of cells required for induction of humoral immunity. Cell mediated immunity. Direct and delayed type cytotoxic and hypersensitivity responses. Transplantation immunology graft rejection. Immunodeficiency diseases. Classification, phagocytic humoral, cell mediated and combined humoral and cell mediated deficiencies, complement mediated deficiencies.

### **Teaching-Learning Strategies**

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

### **Assignments**

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

### **Assessments and Examination**

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks

### **Books Recommended:**

1. KUBY'S IMMUNOLOGY, 2000. 4<sup>th</sup> ed. Richard, A., Goldsby, Thomas, J. Kindt and Barbara, A. Osborn. W.H. Freeman and Company, New York.
2. CELLULAR AND MOLECULAR IMMUNOLOGY, 1994. 2<sup>nd</sup> ed. Abbas Lichtman and Pober, W.B. Saunders Co.

**UZO-504**

**Immunology-II (Lab)**

**Cr. (1)**

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5. **Detect** the problems using the same techniques for other disorders.
6. **DEMONSTRATE** individually the ELISA and other Assays/Tests.

### **Course Contents:**

Microscopic study of various organs of immune system. Immune responses in stress. Estimation of globulins. Demonstration of enzyme linked immunosorbent assay. Demonstration of radioimmuno assays.

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