

Course contents for Immunology**1. Faculty:** FLSB**2. Course Code:****3. Course Title:** Immunology**4. Number of Credits:** Three**5. Course objectives:**

Immune system essentially provides defense against microbial infections and spontaneously arising tumors. In this course, various immune defense mechanisms will be discussed with a focus on humans and mammals. Students would develop a perspective of how these mechanisms operate at molecular, cellular and organ levels and how this understanding may be used for evolving preventive and therapeutic strategies for a healthy life.

5. Minimum prerequisites for taking this course, if any:

Basic knowledge of biochemistry, cell biology, genetics and molecular biology would be assumed.

6. Course structure with units, if applicable:

Unit 1: An overview of the Immune System, Hematopoietic stem cells and differentiation of granulocytes, macrophages and lymphocytes, Innate Immunity, Inflammation responses and mechanisms, Acute Phase reaction, Flow cytometry

Unit 2: The antibody molecule and Immunoglobulin domain, Antigen-antibody reaction, Primary and secondary antibody responses, Immunoglobulin genes, Molecular mechanism of creation of antibody diversity, Monoclonal antibodies and immune-technology, Complement system

Unit 3: The Major Histocompatibility Complex, Immunogenetics, Antigen Presentation, T-Cell / B-Cell Receptor, mitogens and superantigens, T-Cell and B-Cell activation and differentiation, immune-tolerance, Cytotoxic T cells and Natural Killer cells, Cytotoxic mechanisms

Unit 4: Leukocyte Activation and Migration, Hypersensitive Reactions, Vaccines, Diseases of the Immune system

7. Reading suggestions:

- a. **Kuby Immunology** by Judith A. Owen and others
- b. **Basic Immunology: Functions and Disorders of the Immune System** by Abul K. Abbas and others
- c. **Cellular and Molecular Immunology** by Abul K. Abbas and others
- d. **Janeway's Immunobiology** by Kenneth Murphy
- e. **Trends in Immunology** (Journal)
- f. **Nature** (Immunology) journal

10. Evaluation:

Theory:	Mid-semester Written Examination	: 40% Marks
	End-semester Written Examination	: 40% Marks
	Quiz / Assignment/Presentation (oral / poster)/other	: 20% Marks