کارشناسی ارشد ایمونولوژی پزشکی

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| **Field name** | **Department and School name** |
| Immunology | Department of Immunology, School of Medicine |

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| **Postgraduate program name** | **Grade** |
| Medical Immunology | MSc (Master of Science) |

**Medical Immunology**

**Program Description:** Immunology is the study of the immune system and is a crucial branch in biomedical sciences. The immune system protects us from infection through various lines of defense. Inappropriate functioning of the immune system can result in immunological problems, such as autoimmunity, allergy and cancer. Recently it has been clarified that immune responses contribute to the development of some common disorders, which were not traditionally considered as immunological problems, including metabolic, cardiovascular, and neurodegenerative conditions such as Alzheimer’s.

**Course objectives:** The course aims to provide students with the basic knowledge about the functioning of the immune system, inflammation, immune response against infectious agents and against cancer, the causes and pathogenesis of major alterations in the immune response, vaccines, and immunotherapy.

**Student Learning Objectives:**

Knowledge and understanding about:

1. Innate and Adaptive immunity

2. Cells and Tissues of the Immune System

3. Antigens & Antibodies

4. Antigen-Antibody reactions and their application in the diagnosis of diseases

5. Innate Immunity

6. Major Histocompatibility Complex molecules and Antigen Presentation to T cells

7. B cell Biology & Development

8. B cell activation & function

9. T cell Biology & Development

10. T cell activation & function

11. Immunity at Epithelial Barriers and in Immune Privileged Tissues

12. The Complement System

13. Immunologic Tolerance

14. Autoimmunity

15. Immunity to Microbes

16. Vaccine

17. Allergy

18. Hypersensitivity Disorders

19. Immunity to Tumors

20. Transplantation Immunology

21. Congenital Immunodeficiency

22. Acquired Immunodeficiency

**Academic field of Immunology/ Course details**

**Subject areas:** The principles of immunology including: development of the immune system, innate immunity, immunoglobulin structure and genetics, antigen-antibody reactions, the major histocompatibility complex reactions and antigen presentation, T cell receptors (genetics, structure, selection), T cell activation and effector functions, anergy and apoptosis, cytokines, phagocytic cell function, immune responses to infectious organisms and tumors, autoimmune diseases, autoimmunity, allergies, and immune deficiencies.

**Entry requirements**: We require an honors degree or overseas equivalent to Lab science, Immunology sciences, physiology, Virology, Microbiology, Biochemistry, medicine and other biological subjects that contain elements of Immunology. A graduate degree in chemistry is acceptable, but biochemistry and physiology must have been studied during the undergraduate course.

**Definition of Academic Program:** The length of MSc and PhD in Iran University of Medical Sciences, including both theoretical and practical courses is 2-3 and 4-5 years, respectively, under the supervision of accredited professors. MSc program includes 29 credits and PhD program includes 42 credits. The accepted grade in each course is 14 from 20 (from a total of 20).

**Language of Instruction:** Classes during the all of the program course are held in English.

**Admission Requirements**

**\*General requirement:** To apply for this program, you will need to fulfill a number of requirements, which can be found in the Graduate Admission Requirements.

**\*Specific requirements:** The applicant must have a bachelor's certificate for enrollment in the MSc degree, and must have an MSc certificate for enrollment in the PhD degree, in any of the fields listed above.

\***Admission Deadline:** Iran University of Medical Sciences has a rolling application system and reviews student applications during the year.

\***Education Fees and Yearly Expenses:** For complete and comprehensive information about fees and expenses, please refer to the “Education Fees and Yearly Expenses section”