

Ph.D. by Research and Master's Degree Programs

Offered by:

Iran University of Medical Sciences (IUMS)

Office of Vice President for International Affairs

**For
International
Students
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Office of Vice President for International Affairs

The IUMS Graduate Program offers comprehensive education and research training for Master's and Ph.D. students. Our interactive curriculum includes a variety of courses, including deficiency (compensatory), core, and non-core. In addition to coursework, students are required to complete rotations, seminars, and a dissertation or thesis as per the requirements of their respective disciplines.



The Post Graduate Programs offered by Iran University of Medical Sciences:

Ph.D. by Research Degree	Master's Degree
Medical Bacteriology	Medical Microbiology
Clinical Biochemistry	Clinical Biochemistry
Medical Immunology	Medical Immunology
Medical Physics	Nursing (Medical-Surgical)
	Epidemiology
	Medical Physics

Deficiency courses, also known as compensatory courses, are designed to provide students with foundational knowledge in areas where they may be lacking. These courses are mandatory for students who do not have a strong background in their related fields and are intended to help them catch up with their peers. Deficiency courses cover essential concepts and techniques that are fundamental to the discipline, ensuring that all students have the necessary skills and knowledge to succeed in the program. These courses are carefully designed to meet the needs of students with varying levels of experience and are an important part of our commitment to providing a comprehensive education to all Master's and Ph.D. students.

Types of Courses

Core courses are a fundamental aspect of our Master's and Ph.D. programs, providing students with a solid foundation in the essential concepts and techniques of their field of study. These courses cover key topics and theories that are critical to understanding the discipline and are designed to equip students with the knowledge and skills necessary to succeed in their academic and professional pursuits. Core courses serve as the backbone of the program, laying the groundwork for more specialized coursework and research opportunities. These courses are mandatory for all Master's and Ph.D. students, ensuring that they receive a comprehensive education that prepares them for success in their chosen field.

Non-core courses are an important component of our Master's and Ph.D. programs, providing students with the opportunity to broaden their knowledge and skills beyond the core curriculum. These courses cover a range of topics that are relevant to the discipline, but may not be included in the mandatory core courses. Non-core courses are designed to offer students a more diverse educational experience, allowing them to explore areas of interest and develop specialized expertise in specific areas. While these courses are not mandatory, they offer valuable learning opportunities that can enhance students' academic and professional development. Non-core courses are elective and can be chosen by students based on their interests and career goals.



Medical Microbiology

Master's Degree Program



The Master's program in Medical Microbiology is designed to provide students with a comprehensive understanding of the role of microorganisms in human health and disease. Medical microbiology is a subfield of microbiology that focuses on the study of microorganisms that cause infectious diseases in humans, as well as the development of strategies to prevent and treat these diseases.

In this program, students will have the opportunity to learn from leading researchers and faculty members in the field of Medical Microbiology. The program is designed to provide students with a solid foundation in medical microbiology, including coursework in topics such as microbial physiology, immunology, and epidemiology.

The Master's program in Medical Microbiology is open to students who have completed a Bachelor's degree in a related field or have equivalent research experience. Our program is designed to be completed within a set timeframe, typically two years.

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Ph.D. by Research
and Master's Degree
Programs

Table 1. Deficiency or compensatory courses for Non-Continuous Master’s Program in Medical Microbiology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Anatomical Sciences	1	1	2	17	34	51	-
2	Human Physiology	1	-	1	17	-	17	-
3	Biochemistry of Microorganisms	1.5	0.5	2	26	17	43	-
4	Laboratory Animal Management Practices	1	1	2	17	34	51	-
5	Research Methods in Medical Sciences*	2	-	2	34	-	34	-
6	Information Technology (IT)*	1	1	2	17	34	51	-
7	Vital Statistics Software*	-	2	2	-	68	68	-
8	Effect of Physical and chemical factors on Microorganisms	0.5	0.5	1	9	17	26	-
9	Safety and Quality Control in Laboratory Practices	1	1	2	17	34	51	-
Total Credits					16			

* The student must take 4 credits of the non-core courses (Table 3) according to the subject of the desired thesis, with the approval of the Advisor and confirmation of the Graduate Education Advisory Board of the university.

Table 2. Core courses for Non-Continuous Master’s Program in Medical Microbiology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
10	Medical Parasitology	0.5	0.5	1	9	17	26	-
11	Medical Mycology	0.5	0.5	1	9	17	26	-
12	Structure and Physiology of Microorganisms	2	-	2	34	-	34	-
13	Genetics of Microorganisms	1	-	1	17	-	17	-
14	Antimicrobial Agents, Mechanisms of Action and Drug Resistance	1.5	0.5	2	26	17	43	12, 13
15	Host-Microorganism Interactions	1	-	1	17	-	17	-
16	Clinical Bacteriology I	2	-	2	34	-	34	12
17	Clinical Bacteriology II	2	-	2	34	-	34	12
18	Molecular Diagnostic Bacteriology	-	2	2	-	68	68	12
19	Diagnostic Bacteriology I	-	1	1	-	34	34	16
20	Diagnostic Bacteriology II	-	1	1	-	34	34	17
21	Medical Virology	1.5	0.5	2	26	17	43	-
22*	Seminar	1	-	1	17	-	17	-
23	Clinical Rotation	-	2	2	-	102	102	16, 17, 19, 20
24	Thesis			7				-
Total Credits					28			

Table 3. Non-Core courses for Non-Continuous Master’s Program in Medical Microbiology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
25	Pathology and Techniques in Laboratory Diagnosis	1	1	2	17	34	51	-
26	Hematology	1	1	2	17	34	51	-
27	Electronic Microscopy	0.5	0.5	1	9	17	26	-
28	Molecular Cell Biology of Eukaryotes and Prokaryotes	2	-	2	34	-	34	-
29	Immunology of Infectious Diseases	1.5	0.5	2	26	17	43	-
30	Introductory Bioinformatics	1	1	2	17	34	51	-
Total Credits					11			



Medical Bacteriology

Ph.D. Degree Program

The Ph.D. program in Medical Bacteriology is designed to provide students with a comprehensive understanding of the role of bacteria in human health and disease. Medical bacteriology is a subfield of microbiology that focuses on the study of bacteria that cause infectious diseases in humans, as well as the development of strategies to prevent and treat these diseases.

In this program, students will have the opportunity to work with leading researchers and faculty members to conduct cutting-edge research in areas such as bacterial pathogenesis, host-pathogen interactions, and antimicrobial resistance. The program is designed to provide students with a rigorous and comprehensive education in medical bacteriology, including coursework in advanced topics such as immunology, epidemiology, and molecular biology. The Ph.D. program in Medical

Bacteriology is open to students who have completed a Master's degree in a related field or have equivalent research experience. Our program is designed to be completed within a set timeframe, typically four to six years.

Table 1. Deficiency or compensatory courses for Ph.D. Program in Medical Bacteriology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Medical Information Systems (IT)*	1	1	2	17	34	51	-
2	Biostatistics	3	-	3	51	-	51	-
3	Research Methods in Medical Sciences	2	-	2	34	-	34	-
4	Hematology	1	1	2	17	34	51	-
5	Laboratory Animal Management Practices	1	1	2	17	34	51	-
6	Applied Biochemistry	1	2	3	17	68	85	-
7	Molecular Cell Biology of Eukaryotes and Prokaryotes	2	-	2	34	-	34	-
8	Structure and Physiology of Microorganisms	2	-	2	34	-	34	-
9	Genetics of Microorganisms	1	-	1	17	-	17	-
10	Host-Microorganism Interactions	1	-	1	17	-	17	-
11	Practical Bacteriology	-	2	2	-	68	68	-
12	Molecular Diagnostic Bacteriology	-	2	2	-	68	68	-
13	Medical Virology	3	1	4	51	34	85	-
14	Immunology of Infectious Diseases	2	1	3	34	34	68	-
Total Credits					31			

* The student must take 4 credits of the non-core courses (Table 3) according to the subject of the desired thesis, with the approval of the Advisor and confirmation of the Graduate Education Advisory Board of the university.

Table 2. Core courses for Ph.D. Program in Medical Bacteriology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
15	Advanced Systematic Bacteriology I	3	-	3	51	-	51	-
16	Advanced Systematic Bacteriology II	3	-	3	51	-	51	-
17	Basics of Pathogenicity of Bacteria	2	-	2	34	-	34	-
18	Advanced Genetics of Bacteria	1	2	3	17	68	85	9
19	Laboratory Diagnosis of Anaerobic and Fastidious Bacteria	-	2	2	-	68	68	11, 15, 16
20	Oral Microbiology	1	-	1	17	-	17	-
21	Bacterial Toxins	-	2	2	-	68	68	6
22	Bioinformatics	1	1	2	17	34	51	1
23	Rotations	-	3	3	-	204	204	19
24	Seminar I	1	-	1	17	-	17	-
25	Seminar II	1	-	1	17	-	17	-
Total Credits					23			

Table 3. Non-Core courses for Ph.D. Program in Medical Bacteriology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
26	Molecular epidemiology	2	-	2	34	-	34	-
27	An Introduction to Nanotechnology in Medicine	2	-	2	34	-	34	-
28	Bacteriology of Food	2	1	3	34	34	68	-
29	Application of Electron Microscopy	0.5	0.5	1	9	17	26	-
30	Antimicrobial Pharmacology, Side Effects and Mechanisms of Resistance	1	1	2	17	34	51	15, 16
31	Practical virology	-	2	2	-	68	68	-
32	Advanced Immunology of Pathogenic Bacteria	1.5	0.5	2	26	17	43	14
33	Defense Readiness and Advanced Arrangements (Passive Defense) Against Microbial Threats	2	-	2	34	-	34	-
34	Ethics and Biosafety	2	-	2	34	-	-	-
Total Credits					18			





Clinical Biochemistry

Master's Degree Program

The Master's program in Medical Microbiology is designed to provide students with a comprehensive understanding of the role of microorganisms in human health and disease. Medical microbiology is a subfield of microbiology that focuses on the study of microorganisms that cause infectious diseases in humans, as well as the development of strategies to prevent and treat these diseases.

In this program, students will have the opportunity to learn from leading researchers and faculty members in the field of Medical Microbiology. The program is designed to provide students with a solid foundation in medical microbiology, including coursework in topics such as microbial physiology, immunology, and epidemiology.

The Master's program in Medical Microbiology is open to students who have completed a Bachelor's degree in a related field or have equivalent research experience. Our program is designed to be completed within a set timeframe, typically two years.

Table 1. Deficiency or compensatory courses for Non-Continuous Master's Program in Clinical Biochemistry

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	General Physiology	2	-	2	34	-	34	-
2	General Biochemistry	6	-	6	85	34	119	-
3	General Immunology	2	-	2	34	-	34	-
4	Medical Information Systems*	1	-	1	9	17	26	-
Total Credits					11			

* The student must take 4 credits of the non-core courses (Table 3) according to the subject of the desired thesis, with the approval of the Advisor and confirmation of the Graduate Education Advisory Board of the university.

Table 2. Core courses for Non-Continuous Master's Program in Clinical Biochemistry

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
5	Laboratory Methods of Recognition and Working with Devices	2	-	2	17	34	51	2
6	Biochemistry and molecular diagnosis	2	-	2	34	-	34	2
7	Enzymology	2	-	2	34	-	34	2
8	Metabolism of Ternary Substances and Disorders	2	-	2	34	-	34	2
9	Biochemistry of Hormones and Tumor Markers	2	-	2	34	-	34	2
10	Advanced Tissue Biochemistry	2	-	2	34	-	34	2, 3
11	Clinical Biochemistry	1	1	2	51	-	51	2, 5
12	Seminar	1	-	1	17	-	17	-
13	Hospital Rotation	-	2	2	-	102	102	All theoretical and practical courses
14	Thesis	-	-	8	-	-	-	-
Total Credits					26			

Table 3. Non-Core courses for Non-Continuous Master’s Program in Clinical Biochemistry

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
15	Immunochemistry	2	-	2	34	34	34	2, 3, 5
16	Hematology	2	-	2	34	34	34	-
17	Research Methodology	2	-	2	34	34	34	-
18	Nutritional Biochemistry	2	-	2	34	34	34	2
19	Cytochemistry	2	-	2	34	34	34	2, 5
20	Membrane Biochemistry and Transport	2	-	2	34	34	34	1, 2
21	Molecular Mechanism of Diseases	2	-	2	34	34	34	2
22	Bioinformatics	1	1	2	17	34	51	2
23	Applied Statistics	2	-	2	34	34	34	-
Total Credits					18			



Clinical Biochemistry

Ph.D. Degree Program

Our Ph.D. program in Clinical Biochemistry is designed for students who are interested in pursuing advanced research in the field of clinical biochemistry, with a focus on the application of chemical, biochemical, and molecular biological methods to diagnose and manage diseases.

The program provides a rigorous training environment that emphasizes both theoretical knowledge and practical skills. Through coursework, seminars, and hands-on laboratory experience, students will gain a deep understanding of the principles and techniques of clinical biochemistry, as well as the latest advances in the field.

Our faculty members are leading experts in clinical biochemistry, with diverse research interests that span areas such as clinical enzymology, toxicology, and therapeutic drug monitoring. Students will have the opportunity to work closely with faculty members on research projects, both independently and as part of a team. By the end of the program, students will be well-prepared for careers in academia, industry, or government, as well as for postdoctoral training in clinical biochemistry or related fields.

Table 1. Deficiency or compensatory courses for Ph.D. Program in Clinical Biochemistry

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Medical Information Systems*	0.5	0.5	1	9	17	26	-
2	Biochemistry of Hormonology	2	-	2	34	-	34	-
3	Metabolism of Ternary Substances	2	-	2	34	-	34	-
4	Molecular Biology	2	-	2	34	-	34	-
5	Advanced Laboratory Techniques	1	1	2	17	34	51	-
6	Biostatistics	2	-	2	34	-	34	-
7	Research Methods in Medical Sciences	2	-	2	34	-	34	-
Total Credits					13			

* The student must take 4 credits of the non-core courses (Table 3) according to the subject of the desired thesis, with the approval of the Advisor and confirmation of the Graduate Education Advisory Board of the university.

Table 2. Core courses for Ph.D. Program in Clinical Biochemistry

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
8	Clinical Biochemistry I	2	-	2	34	-	34	-
9	Clinical Biochemistry II	2	-	2	34	-	34	-
10	Clinical Biochemistry III	2	-	2	34	-	34	-
11	Clinical Biochemistry Laboratory Management and Quality Control	1	-	1	17	-	17	-
12	Congenital Metabolic Diseases	2	-	2	34	-	34	-
13	Biochemistry of Cancer and Tumor Markers	2	-	2	34	-	34	-
14	Advanced Methods of Molecular Diagnosis of Diseases	2	-	2	34	-	34	-
15	Seminar	0.5	0.5	1	9	17	26	-
16	Medical Diagnosis Laboratory Rotation	-	6	6	-	68	408	8, 9, 10
17	Dissertation	-	18	18	-	-	-	-
Total Credits					38			

Table 3. Non-Core courses for Ph.D. Program in Clinical Biochemistry

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
18	Bioinformatics	1	1	2	17	34	51	-
19	Cell Culture	1	1	2	17	34	51	-
20	Biochemistry of Trace Elements	2	-	2	34	-	34	-
21	Systems Biology of Cell Signaling	2	-	2	34	-	34	-
22	Toxicology and Drug Monitoring	2	-	2	34	-	34	-
23	Advanced Diagnostic Techniques	1	1	2	17	34	51	-
Total Credits					12			

The Master's program in Medical Immunology is designed for students who are interested in pursuing advanced study in the field of immunology, with a focus on its applications in medicine.

Our program provides a comprehensive education in the principles of immunology, including the cellular and molecular mechanisms of immune responses, immune system disorders, and the development of novel immunotherapies. Through coursework, seminars, and research experience, students will gain a deep understanding of the latest advances in the field.

The IUMS faculty members are leading experts in Medical Immunology, with diverse research interests that span areas such as cancer immunotherapy, autoimmune diseases, and infectious diseases. Students will have the opportunity to work closely with faculty members on research projects, both independently and as part of a team. By the end of the program, students will be well-prepared for careers in academia, industry, or government, as well as for further study in medical or biological sciences.



Medical Immunology

Master's Degree Program

Table 1. Deficiency or compensatory courses for Non-Continuous Master’s Program in Medical Immunology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Medical Information Systems*	0.5	0.5	1	9	17	26	-
2	Biostatistics	1	1	2	17	34	51	-
3	Pathology	1	-	1	17	-	17	-
4	Biochemistry	2	-	2	34	-	34	-
5	Histology	1	-	1	17	-	17	-
6	An Introduction to Laboratory Methods in Immunology	-	1	1	-	34	34	-
Total Credits					8			

* The student must take 4 credits of the non-core courses (Table 3) according to the subject of the desired thesis, with the approval of the Advisor and confirmation of the Graduate Education Advisory Board of the university.

Table 2. Core courses for Non-Continuous Master’s Program in Medical Immunology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
7	Immunology I	0.5	0.5	1	9	17	26	-
8	Immunology II	2	-	2	34	-	34	7
9	Immunology of Infectious Diseases	2	-	2	34	-	34	7
10	Immunopathology and Immunotherapy	2	-	2	34	-	34	7
11	Practical Training on Laboratory Techniques in Immunology	1	2	3	17	102	119	7
12	Laboratory Animals	0.5	0.5	1	9	17	26	-
13	Cellular and Molecular Biology	2	-	2	34	-	34	4
14	Immunochemistry	1	-	1	17	-	17	-
15	Immunohematology and Blood Bank	1	-	1	17	-	17	-
16	Seminar	2	-	2	34	-	34	7
17	Rotation	-	1	1	-	68	68	11
18	Thesis	-	-	7	-	-	-	-

Total Credits

26

Table 3. Non-Core courses for Non-Continuous Master’s Program in Medical Immunology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
19	Immunopharmacology	1	-	1	17	-	17	7
20	Research Methodology	1	-	1	17	-	17	-
21	Bioinformatics	1	-	1	17	-	17	-
22	Academic Writing and Principles Underlying	0.5	0.5	1	9	17	26	-
23	Entrepreneurship	1	-	1	17	-	17	-
24	Management of Laboratory Economics	1	-	1	17	-	17	-
Total Credits					6			

An illustration of a person in a blue lab coat standing next to a presentation screen. The screen displays two stylized virus particles with red and yellow spikes. The background is a warm orange and red gradient with a green circular border. The person is pointing at the screen.

Medical Immunology

Ph.D. Degree Program

The Ph.D. program in Medical Immunology is designed to provide students with an in-depth understanding of the immune system and its role in health and disease. It emphasizes a multidisciplinary approach, drawing on expertise from a range of fields including microbiology, immunogenetics, molecular immunology, immune cell signaling, and bioinformatics. Medical Immunology is a subfield of immunology that focuses on the study of the immune system in the context of human health and disease, including the development of strategies to prevent and treat immune-related disorders. In this program, students will have the opportunity to work with leading researchers and faculty members to conduct cutting-edge research in areas such as immunotherapy, vaccine development, and autoimmune diseases. Our faculty members are leading experts in medical immunology, with diverse research interests that span areas such as cancer immunotherapy, autoimmune diseases, and infectious diseases. Students will have the opportunity to work closely with faculty members on research projects, both independently and as part of a team. The PhD program in Medical Immunology is open to students who have completed a Master's degree in a related field or have equivalent research experience. Our program is designed to be completed within a set timeframe, typically four to six years. By the end of the program, students will be well-prepared for careers in academia, industry, or government, as well as for postdoctoral training in medical or biological sciences.

Table 1. Deficiency or compensatory courses for Ph.D. Program in Medical Immunology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Immunology I	2	-	2	34	-	34	-
2	Immunology II	2	-	2	34	-	34	-
3	Cell and Molecular Biology (with Genetic Orientation)	2	-	2	34	-	34	-
4	Immunology of Infectious Diseases	1	-	1	17	-	17	-
5	Laboratory Methods in Immunology	1	2	3	17	68	85	-
6	Immunoematology and Blood Bank	1	1	2	17	34	51	-
7	Medical Information Systems*	0.5	0.5	1	9	17	26	-
Total Credits					13			

* The student must take 4 credits of the non-core courses (Table 3) according to the subject of the desired thesis, with the approval of the Advisor and confirmation of the Graduate Education Advisory Board of the university.

Table 2. Core courses for Ph.D. Program in Medical Immunology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
8	Advanced Immunology	2	-	2	34	-	34	2
9	Advanced Molecular Biology	2	-	2	34	-	34	2
10	Organ-specific Immunology	2	-	2	34	-	34	2
11	Clinical Immunology	2	-	2	34	-	34	10
12	Vaccines and Vaccination	2	-	2	34	-	34	1, 4
13	Immunotherapy	1	-	1	17	-	17	2
14	Advanced Methods in Immunology and Immunochemistry	1	2	3	17	68	85	5
15	1.5-month Clinical Rotation in Dermatology	-	3	3	-	204	204	11
16	1.5-month Clinical Rotation in Rheumatology	-	3	3	-	204	204	11
17	1.5-month Clinical Rotation in Infectious Diseases	-	3	3	-	204	204	4
18	1.5-month Clinical Rotation in Immunodeficiency Diseases and Allergies	-	3	3	-	204	204	11
Total Credits					26			

Table 3. Non-Core courses for Ph.D. Program in Medical Immunology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
19	Advanced Methods in Biostatistics	1	-	1	17	-	17	-
20	Bioinformatics	1	-	1	17	-	17	-
21	Short-term Research Project	-	2	2	-	68	68	5
22	Psychoneuroimmunology	1	-	1	17	-	17	2
23	Nutrition and the Immune System	1	-	1	17	-	17	2
24	Immunosenescence	1	-	1	17	-	17	2
25	Reproductive Immunology	1	-	1	17	-	17	2
26	Sports Immunology	1	-	1	17	-	17	2
27	Nanoimmunology	1	-	1	17	-	17	2
28	Ethics and Biosafety	1	-	1	17	-	17	-
Total Credits					11			

Medical-Surgical Nursing

Master's Degree Program

The Master's Degree Program in Medical-Surgical Nursing is designed to provide advanced knowledge and skills in the care of adult patients with complex medical and surgical conditions. The program focuses on the development of clinical expertise, leadership, and research skills to prepare nurses for advanced practice roles in a variety of healthcare settings.

Throughout the program, students will learn about the latest evidence-based practices in medical-surgical nursing, including topics such as acute and chronic illness management, pharmacology, health promotion, and disease prevention. Students will also have the opportunity to develop their clinical skills through hands-on experience in a variety of healthcare settings.

Graduates of the program are well-prepared for advanced practice roles in medical-surgical nursing, as well as for doctoral study in nursing. The program is typically completed in 2-3 years.

Table 1. Deficiency or compensatory courses for Non-Continuous Master's Program in Medical-Surgical Nursing

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Medical Information Systems	0.5	0.5	1	9	17	26	-
2	Advanced Statistics and Research Methods	2	1	3	34	34	68	-

Total Credits

4

Table 2. Core courses for Non-Continuous Master’s Program in Medical-Surgical Nursing

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
3	Nursing Ethics and Professional Relations	1	0.5	1.5	17	17	34	-
4	Theories, Nursing Models, and Their Application	1.5	0.5	2	26	26	52	-
5	Management of Nursing Services in Clinical Departments	1	0.5	1.5	17	26	43	4
6	Methods of Client Education	1	0.5	1.5	17	17	34	-
7	Specialized Pharmacology	1.5	-	1.5	26	-	26	-
8	Pathophysiology	1.5	-	1.5	26	-	26	-
9	Health Monitoring in Adults	1	1	2	17	51	68	-
10	Nursing of Acute Medical-Surgical Disorders and Diseases	1.5	1.5	3	26	77	98	7, 8, 9
11	Nursing of Chronic Medical-Surgical Disorders and Diseases	1.5	1.5	3	26	77	98	7, 8, 9
12	Complementary Medicine, Alternative Medicine, and the Nurse's Role in Them	1	0.5	1.5	17	26	43	7, 8, 9
13	Passive Defense and the Nurse’s Role in It	0.5	-	0.5	9	-	9	7, 8, 9
14	Oncology Nurse	0.5	1	1.5	9	51	60	7, 8, 9
15	Palliative Care and the Nurse’s Role in It	0.5	0.5	1	9	26	35	7, 8, 9
16	Rotation	-	6	6	-	408	408	-
17	Thesis	-	-	4	-	-	-	-
Total Credits					32			



Epidemiology

Master's Degree Program

The Master's program in Epidemiology is a comprehensive program designed for master's students who are passionate about studying the patterns, trends, causes, and effects of diseases in populations. The program provides students with the knowledge and skills necessary to work in this specialized area of public health. Throughout the program, students will take courses in epidemiological methods, biostatistics, and public health policy. They will also have the opportunity to learn from experienced epidemiologists and public health professionals and gain hands-on experience in a variety of research settings. Our curriculum covers a wide range of topics, including study design, data analysis, and disease surveillance. Upon completion of the program, students will be well-prepared to work as epidemiologists in a variety of healthcare settings, including government agencies, non-profit organizations, and research institutions. They will be equipped with the knowledge and skills necessary to design and conduct high-quality research studies, analyze data, and make evidence-based recommendations for disease prevention and control.

Table 1. Deficiency or compensatory courses for Non-Continuous Master’s Program in Epidemiology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Medical Information Systems	0.5	0.5	1	9	17	26	-
Total Credits					1			

Table 2. Core courses for Non-Continuous Master’s Program in Epidemiology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
2	Principles of Epidemiology and Research Methods	2	1	3	34	34	68	-
3	Epidemiological Methods	2	-	2	34	-	34	2
4	Concepts and Methods of Biostatistics	2	1	3	34	34	68	-
5	Principles and Basics of Infectious Disease Epidemiology	2	-	2	34	-	34	-
6	Principles and Basics of Non-communicable Disease Epidemiology	2	-	2	34	-	34	-
7	Analysis of Health Substances	1	1	2	17	34	34	4
8	Statistical Methods in Epidemiology	2	-	2	34	-	34	2, 4
9	Community Health Assessment	-	2	2	-	102	102	2
Total Credits					18			

Table 3. Non-Core courses for Non-Continuous Master’s Program in Epidemiology

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
10	Sampling Methods	2	-	2	34	-	34	2, 4, 7
11	Social Epidemiology in Health	2	-	2	34	-	34	2, 3, 4
12	Epidemiology of Cancer	2	-	2	34	-	34	2, 3, 4
13	Environmental and Occupational Epidemiology	2	-	2	34	-	34	2, 3, 4
14	Spatial Analysis in Epidemiology	2	-	2	34	-	34	-
15	Application of Epidemiology in Health System	2	-	2	34	-	34	2, 3
16	Multivariate Data Analysis Methods	2	-	2	34	-	34	2, 3, 4
17	Qualitative Studies	2	-	2	34	-	34	-
18	Practical Training	-	2	2	-	102	102	All core courses
19	Epidemiology of Injuries and Disasters	2	-	2	34	-	34	-
20	Laboratory of Epidemiology Skills	2	-	2	34	-	34	2
21	Epidemiological Models	2	-	2	34	-	34	2, 3, 4
22	Nutritional Epidemiology	2	-	2	34	-	34	-
23	Health Economics	2	-	2	34	-	34	-
24	Clinical Trial	2	-	2	34	-	34	2, 3, 4
25	Epidemiology of Cardiovascular Diseases	2	-	2	34	-	34	-
26	Special Topics in Epidemiology	2	-	2	34	-	34	2, 3, 4
27	Clinical Epidemiology	2	-	2	34	-	34	3, 8
28	Specialized English in Epidemiology	2	-	2	34	-	34	-

Total Credits

38



Medical Physics

Master's Degree Program

The Master's program in Medical Physics is designed for students who are passionate about applying physics principles to improve diagnosis and treatment in medicine. The program provides students with the knowledge and skills necessary to work in a variety of settings, including hospitals, research laboratories, and industry. Throughout the program, students will learn about the physics of medical imaging, radiation therapy, and nuclear medicine. They will also gain practical experience through laboratory work and clinical rotations.

Graduates of the program will be well-prepared for careers as medical physicists, a field that is in high demand due to the increasing use of technology in healthcare.

Table 1. Deficiency or compensatory courses for Non-Continuous Master's Program in Medical Physics

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	General English	2	-	2	34	-	34	
2	Mathematics	2	-	2	34	-	34	
3	Biostatistics	2	-	2	34	-	34	
4	Basic Principles of Data Processing and Computer Simulation	2	1	2	34	34	68	
5	Research Methods in Medical Sciences	1.5	0.5	2	26	17	43	3
6	Basics of Vital Signal Processing	1.5	0.5	2	26	17	43	
7	Physiology	2	-	2	34	-	34	
8	Anatomy	1	-	1	17	-	17	
9	Cell Biology and Genetics	2	-	2	34	-	34	
10	Physics of Diagnostic Radiology	2	-	2	34	-	34	
11	Atomic and Nuclear Physics	2	-	2	34	-	34	
12	Medical Information Systems*	0.5	0.5	1	9	17	26	
جمع					20.5			

* The student must take 6 credits of the non-core courses (Table 3) according to the subject of the desired thesis, with the approval of the Advisor and confirmation of the Graduate Education Advisory Board of the university.

Table 2. Core courses for Non-Continuous Master’s Program in Medical Physics

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
13	Principles of Radiation Detection and Dosimetry	1.5	0.5	2	26	17	43	11
14	Specialized X-ray Imaging Systems	2	-	2	34	-	34	10
15	Basics of Radiology	2	-	2	34	-	34	-
16	Protection Against Ionizing Radiation in Medical Radiation Centers	1.5	0.5	2	26	17	43	13
17	Physics of Nuclear Medicine	1.5	0.5	2	26	17	43	11, 13
18	Physics of Radiotherapy I	1.5	0.5	2	26	17	43	13
19	Imaging Method with MR I	1.5	-	1.5	26	-	26	14
20	Ultrasound Waves and Their Application in Medicine I	1	0.5	1.5	17	17	34	-
21	Laser and its Application to Medicine	1	-	1	17	-	17	11
22	Specialized English for Medical Physics	2	-	2	34	-	34	1
23	Seminar and Apprenticeship	0.5	1.5	2	9	77	86	-
24	Thesis	-	-	6	-	-	-	-
Total Credits					26			

Table 3. Non-Core courses for Non-Continuous Master’s Program in Medical Physics

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
25	Non-ionizing Radiation and Protection Against It	2	-	2	34	-	34	11
26	Physics of Radiotherapy II	1.5	0.5	3	26	17	43	18
27	Radiation Oncology	2	-	2	34	-	34	18
28	Environmental Monitoring and Radioactive Waste Disposal	1.5	0.5	3	26	17	43	16,17,18
29	Quality Control in Radiology Systems	1	1	2	17	34	51	14
30	Magnetolectricity and its Application in Medicine	1	-	1	17	-	17	7,8,9
31	Light and Optical Physics	0.5	0.5	1	9	17	26	-
32	Ultrasound Waves and Their Application in Medicine II	1	0.5	1.5	17	17	34	-
33	Physical Principles of Laboratory Science Devices	1.5	0.5	2	26	17	43	-
34	Digital Medical Image Processing	1.5	0.5	2	26	17	43	14
35	Imaging Method with MR II	1.5	0.5	2	26	17	43	19
Total Credits					15			



Medical Physics

Ph.D. Degree Program

The Ph.D. program in Medical Physics is designed to provide students with advanced knowledge and skills in the application of physics to medicine. The program provides students with the opportunity to conduct cutting-edge research in areas such as medical imaging, radiation therapy, and nuclear medicine. Throughout the program, students will work closely with faculty members who are experts in their fields and participate in cutting-edge research projects. They will also have access to state-of-the-art research facilities and equipment.

Upon graduation, students will be prepared for careers in academia, industry, or government, as well as for postdoctoral research positions. They will have the skills and knowledge necessary to make significant contributions to the development of new technologies and treatments that improve patient care. The program is typically completed in 4-5 years and includes coursework, research, and a dissertation.

Table 1. Deficiency or compensatory courses for Ph.D. Program in Medical Physics

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
1	Medical Information Systems	0.5	0.5	1	9	17	26	-
2	Principles of Radiation Detection and Dosimetry	1.5	0.5	2	26	17	43	5
3	Basics of Radiology	2	-	2	34	-	34	-
4	Protection Against Ionizing Radiation in Medical Radiation Centers	1.5	0.5	2	26	17	43	2
5	Physics of Nuclear Medicine	1.5	0.5	2	26	17	43	2
6	Physics of Radiotherapy I	1.5	0.5	2	26	17	43	2
7	Imaging Method with MRI	1.5	-	1.5	26	-	26	-
8	Ultrasound Waves and Their Application in Medicine I	1	0.5	1.5	17	17	34	-
9	Laser and its Application to Medicine	1	-	1	17	-	17	-

Total Credits

15

Table 2. Core courses for Ph.D. Program in Medical Physics

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
10	Theoretical Basics in Image Formation	2	-	2	34	-	34	-
11	Advanced MRI Imaging	2	-	2	34	-	34	7
12	Non-ionizing Electromagnetic Waves and Fields and Their Application in Medicine	2	-	2	34	-	34	-
13	Modern Topics in Radiotherapy Physics	1.5	0.5	2	26	17	43	6
14	Special Topics in Radiation Detection and Dosimetry	2	-	2	34	-	34	2
15	New Topics in Radiobiology	2	-	2	34	-	34	3
16	Modern Topics in Nuclear Medicine	2	-	2	34	-	34	2, 5
17	Principles and Basics of Monte Carlo Simulation and Its Application in Medicine	1	1	2	17	34	51	-
Total Credits					16			

Table 3. Non-Core courses for Ph.D. Program in Medical Physics

Course Code	Course Title	Credits			Hours			Prerequisite or Simultaneous
		Theoretical	Practical	Total	Theoretical	Practical	Total	
18	Medical Image Processing	1.5	0.5	2	26	17	43	-
19	Quantitative Analysis of MR Images	1.5	0.5	2	26	17	43	10, 11
20	Functional and Structural MR Imaging of the Brain and Nerves	1.5	0.5	2	26	17	43	11
21	Molecular Imaging	2	-	2	34	-	34	-
22	Advanced Topics in X-ray Imaging	2	-	2	34	-	34	10
23	Advanced Methods in Diagnostic Ultrasound Imaging	1.5	0.5	2	26	17	43	8
24	Internship in Imaging	-	-	2	-	-	126	-
Total Credits					14			



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