

In the Name of Good

Title: Medical Bacteriology

Degree: PhD

Introduction

The field of Medical Bacteriology is a branch of the medical Microbiology whose PhD graduates learn more about physiology, pathogenesis, histopathology, immunology and biology of the fungi and diseases caused by them; help in diagnosis, treatment and preventing these diseases.

Definition

The graduate help in propagating theoretical and practical aspects of the field, advancing the frontiers of knowledge by preparing research literature as well as innovations and promoting public health by providing laboratory diagnostic and consultative services at the highest level.

Aim

After the graduation, the graduates are expected to be able to:

-) Teach theoretically and practically medical bacteriology at all educational levels.
-) Work in the research institutions as principal or collaborate investigator.
-) Work in the diagnostic laboratories as technical manager.

Values: It is believed that education formed base on:

-) Protection of society against infection diseases
-) To observe professional ethics and human rights
-) Using of resent techniques
-) To control antimicrobial resistance

Mission: The Ph.D. in Medical bacteriology degree belongs to medical basic sciences and serves the national researches schemes and academic educational programs.

Vision: In the next 10 years, the Islamic Republic of Iran will be among the top countries offering this course in terms of the educational excellence, research products and providing diagnostic services

concerning medical bacteriology. The main mission of the course is training committed, knowledgeable and competent people in Medical Bacteriology. Hopefully, this (with other medical basic sciences courses) will upgrade the individual skills of the medical bacteriology qualified graduates who are occupied in universities, industries, quality control laboratories, research centers and inspection units.

Outcomes and Principal Roles and Tasks of the Graduates

Graduate in this course will be able to take educational responsibilities, conduct researches and provide expert and consulting services related to the Bacteriology. In education contribution to teaching bacteriology to students of various fields according to the university's needs. In research designing, implementing and evaluating basic and applied researches in various contexts of related field. In providing expert services for the laboratory diagnosis of bacteriology using standard and ingenious methods. In providing consulting services with cooperation and consultation on controlling the hospital infections

Expected General Competencies

-) Communicative skills
-) Education
-) Research and writing papers
-) Presenting ideas, formulating hypotheses and theorizing
-) Managerial skills including policymaking; planning; organizing; and evidence-based monitoring, supervision, control and evaluation

Specific Competencies (Skills & Performances)

Besides those of the MSc's, they include:

-) Keeping the physical and psychological environment as well as the workplace healthy
-) Skills in molecular biology
-) Working with professional equipment
-) Professional in microbial diagnostic
-) Interpreting the test results
-) To conduct research in national and international levels
-) To update by self-education

Conditions of Admission to the Course

A master's degree (MSc) in one of the fields of medical microbiology, medical mycology, bacteriology, medical parasitology, medical virology, pathobiology, molecular and cellular biology, general doctorate one of the fields of Medicine, Dentistry and Pharmacy or professional doctorate in the Laboratory Sciences, awarded by one the home or foreign universities approved by the Ministry of Health, Treatment and Medical Education.

- Being eligible for entering to the course according to the PhD educational rules and regulations.

Educational Strategies, Methods and Techniques

Educational Strategies will be:

-) Task-based learning
-) A combination of student- and teacher-centered learning
-) Problem-based learning
-) Lab-based learning
-) Subject-directed learning
-) Systematic learning
-) Evidence-based learning
-) Disciplinary with integrated subjects if needed
-) Community- oriented learning

Educational Methods and Techniques will be:

-) Various intra- and intersectoral, hospital, interdisciplinary and inter-university conferences as well as seminars
-) Discussion in small groups, workshops, journal clubs and reading groups as well as Case Presentation
-) Participation in training lower ranks
-) Self-Education, Self-Study
-) Other training methods and techniques according to the requirements and objectives

Student Assessment

a) Methods of the assessment Residents will be evaluated by the following methods: Written; verbal; OSLE; Logbook-based assessment

b) Types of the assessment Periodic, comprehensive (final); monitoring the progress and completion of the thesis

Ethical issues

The graduates should,

-) Observe the Patient's Bill of Rights¹ when working with the patients.
-) Strictly observe Biosafety and Patient Safety Rules* concerning the patients, personnel and workplace.
-) Observe the Rulebook for Dress Code².
-) Strictly observe the Regulations of Working with the Laboratory Animals³.
-) Carefully preserve resources and equipment.
-) Truly respect faculty members, the staff, classmates and other students and work for creating an intimate and respectful atmosphere.

) Observe social and professional ethical considerations in criticism. 1, 2 and 3 are contained in the Enclosures.

* Biosafety and Patient Safety Rules will be set out by the Educational Departments and will be available to the students.

Total Number of the Credits:

The course credits totals 49 including:

The core credits: 23

The noncore credits: 6

Writing dissertation: 20

Total: 49

Table A. Compensatory Courses in the medical bacteriology PhD

Code of the course	Title of the course	Number of Credits			Total hours of the course			Prerequisite or concurrent courses
		Theoretical	Practical	Total	Theoretical	Practical	Total	
01	Information technology systems in medicine*	1	1	2	17	34	51	
02	Biostatistics	3	-	3	51	-	51	
03	Research Methods in Health Sciences	2	-	2	34	-	34	
04	Haematology	1	1	2	17	34	51	
05	Care and Use of Laboratory Animals	1	1	2	17	34	51	
06	Applied biochemistry	1	2	3	17	68	85	
07	Molecular and cellular biology (Prokaryotes & Eukaryotes)	2	-	2	34	-	34	
08	Structure and physiology of microorganisms	2	-	2	34	-	34	
09	Microbial genetics	1	-	1	17	-	17	
10	Host – Microorganisms relation	1	-	1	17	-	17	
11	Practical bacteriology	-	2	2	-	68	68	
12	Molecular diagnostic of bacteria	-	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	20	11	31				

* Completing this course is obligatory for those who have not completed it before.

Students should earn up to 16 compensatory course credits (Table A) as specified by the Department of Education and approved by the Postgraduate Education Council.

Table B. Core Courses in the Medical Bacteriology PhD

Code of the course	Title of the course	Number of Credits			Total hours of the course			Prerequisite or concurrent courses
		Theoretical	Practical	Total	Theoretical	Practical	Total	
15	Advanced systematic bacteriology (1)	3	-	3	51	-	51	
16	Advanced systematic bacteriology (2)	3	-	3	51	-	51	
17	Basic bacterial pathogenesis	2	-	2	34	-	34	
18	Advances bacterial genetics	1	2	3	17	68	85	09
19	Laboratory diagnostic of fastidious and anaerobic bacteria	-	2	2	-	68	68	11,15, 16
20	Oral microbiology	1	-	1	17	-	17	
21	Bacterial toxins	-	2	2	-	68	68	06
22	Bioinformatics	1	1	2	17	34	51	01
23	Internship	-	3	3	-	204	204	19
24	Seminar (1)	1	-	1	17	-	17	
25	Seminar (2)	1	-	1	17	-	17	
	Total	13	10	23				

Table C. Non-Core Courses in the Medical Bacteriology PhD

Code of the course	Title of the course	Number of Credits			Total hours of the course			Prerequisite or concurrent courses
		Theoretical	Practical	Total	Theoretical	Practical	Total	
26	Molecular epidemiology	2	-	2	34	-	34	
27	Introduction to nanotechnology in medicine	2	-	2	34	-	34	
28	Food bacteriology	2	1	3	34	34	68	
29	Electron microscopy	0.5	0.5	1	9	17	26	
30	Antimicrobial agents 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	46	14
33	Preparation of defense against new threats or passive defense against microbial threats	2	-	2	34	-	34	
34	Ethics and biosafety	2	-	2	34	-	34	
	Total	13	5	18				

* Students should choose 6 credits (Related to the thesis) as specified by the corresponding department.