
University: Al-Azhar
Faculty : Medicine
Department: Microbiology & Immunology



Program Specification

Year: 2013/2014

A- Basic information:

1. Program title: Doctorate Degree in Microbiology & Immunology
2. Nature of the program: Single Common program
3. Department responsible for the program: Microbiology & Immunology

B- Specialized information:

1. General objective of the program:
 - 1/1. Prepare Doctorate graduates for research, technical and supervisory positions in scientific laboratories in academic, healthcare fields.
 - 1/2. Provide graduates with fundamentals of bacteriology, virology, mycology and immunology, including pathogenicity processes at the cellular and molecular level.
 - 1/3. Enable graduates to supervise and practice prevention and control of infection in the healthcare settings.
2. Intended Learning Outcomes from the program:
 - 2/1. Knowledge and understanding:
 - A. achieve sufficient understanding of medical bacteriology, virology, mycology and immunology to offer basic advice on relevant investigations, interpretation of results and infection control procedures.
 - B. achieve sufficient understanding of basic genetics and the principles and application of molecular biology techniques in research and medicine.
 - C. express a basic understanding of quality assurance in the diagnostic laboratory and the range of diagnostic tests available and the circumstances in which they are used.
 - D. describe the important mechanisms of microbial pathogenesis and outcomes of infections with emphasis on molecular immunology and immunity to infections.
 - E. achieve sufficient understanding of the important microbial infections with an emphasis on the common infections in practice, including endemic infections and infections associated with immunocompromised patients.
 - F. explain the modes of transmission of pathogenic microorganisms and how the pathogen is maintained in nature.
 - G. describe how the pathogen could be eliminated; in the environment, from medical equipment and devices in order to provide safe healthcare.
 - H. clarify treatment of infection caused by the pathogen.

I.list the key considerations and principles in the planning and design of a study on the basis of statistical methods.

2/ 2 Intellectual Skills:

- A. analyze clinical and laboratory problems effectively, and interpret and explain results simply and effectively to clinicians and patients.
- B. demonstrate basic criteria used in the taxonomy of bacteria, viruses and fungi.
- C. plan an appropriate investigation scheme for individuals at risk of infection.
- D. demonstrate important mechanisms of microbial pathogenesis, basic concepts of molecular immunology, immunity to infection and outcomes of infections.
- E. utilize guidelines for prevention and control of infection/disease.
- F. compare and contrast the common symptoms of infectious diseases.
- G. produce accurate letters/reports with clear conclusions.
- H. plan an independent research proposal to a high professional and ethical standard.
- I. write well-structured and clear essays.

2/ 3 Skills:

2/3/1 Professional and Practical Skills:

- A. perform diagnostic laboratory tests in medical bacteriology, virology, mycology and immunology to offer basic advice on relevant investigations, interpretation of results and infection control procedures.
- B. plan and execute laboratory experiments with an awareness of good laboratory practice assessment.
- C. prepare standard operating procedures (SOPs).
- D. prepare laboratory reports.
- E. analyze and interpret laboratory data relevant to the cases of medical microbiology and immunology.
- F. perform the isolation and characterization of specific microbes in clinical specimens.
- G. Identify the pathogen by its specific growth characteristics if any, distinguishing biochemical tests, its morphological and/or staining characteristics, immunological or nucleic acid-based tests.
- H. perform basic laboratory techniques in extraction and analysis of genomic DNA including protein and PCR technology.
- I. identify the manual diagnostic procedures and the application of laboratory automation for diagnosis, quality control program and laboratory administration.
- J. adhere to relevant precautions and safety procedures in a medical microbiology laboratory.
- K. develop an understanding of the biological characteristics of pathogenic microorganisms, the course of their infections, the functions of the immune system and the actions of antibiotics against these pathogens.
- L. produce a research proposal to a professional standard, and submit an application to the ethics committee.
- M. interpret the results of simple statistical analysis and communicate them in a clear, concise and appropriate manner

2/3/2 General Skills:

- A. communicate effectively through oral presentations, computer processing and presentations, and written reports.
- B. integrate and evaluate information from a variety of sources.
- C. transfer techniques and solutions from one discipline to another.
- E. manage resources and time.
- F. learn independently and effectively with critical inquiry for the purpose of continuing professional development.
- G. understand different scientific methodologies and have critical reading abilities.
- H. write scientific article according to the basics of scientific research.

3. Academic standards of the program:

3/1. Department: of Microbiology & Immunology, Faculty of Medicine, Cairo University.

3/2 - Department: of Microbiology & Immunology, Faculty of Medicine, AinShams University.

3/3 -----

4. References “benchmark”

4/1 Academic Reference Standards (ARS) from *NQAAC*

4/2 -----

4/3 -----

5. Structure and content of the program:

A- Time duration of the program: --3 years-----

B- Structure of the program: --Thesis followed by—teaching courses .

-Number of hours/ numbers of units: Lecture: 124 Practical: 64 Total: 188

- Basic Scientific courses: Number: 0 %: 0

- Social and Human Sciences: Number: 0 %: 0

- Courses of Specialized Sciences: Number: 0 %: 0

- Courses of other sciences: Number: 0 %: 0

- Field Practice:

C- Courses of the program:

Code number	Course Title	Number of units	Number of hours /Week			Study Year
			Lectures	Practical/ Clinical	Others such as tutorials	
I	Molecular Genetics	19	20	8		
II	General Bacteriology	14	18	12		
III	Immunology	12	20	8		
IV	Systemic Bacteriology	20	30	20		
V	Virology	18	14	4		
VI	Mycology	10	10	4		
VII	Applied Microbiology	10	4	6		
VIII	Infection Control	4	8	2		
	Total	107	124	64		

6. Courses Content: code700.titleMic. content MD present in course specifications (attached).
7. Pre-requests for admission to the program:--- present in Rules and Bylaws.
8. Methods and rules for assessment for attendance of the program:

Method	What to measure of ILOs
1- Written Exam	Knowledge, Understanding & Intellectual
2- Oral Exam	Intellectual skills & Knowledge
3- Practical Exam	General & Professional skills

9. Methods of evaluation of the program:

Evaluator	Method	Sample
1-End year Students	Questionnaire at the end of the program	All the Postgraduate students
2-Graduates	-----	Not yet determined
3-Business men (Stakeholders)	-----	Not yet determined
4-External evaluator or Examiner	Review program and courses. Attending the final exam	Oncebefore implementation
5-Other methods	Annual program reviewer	

Coordinator of the program: Prof. MoustafaAbdelnasser

Signature: *M. Abdelnasser*

Date: Dec 2014