

University: Al-Azhar  
Faculty : Medicine



Department: Microbiology & Immunology

### Program Specification

Year: 2013/2014

#### A- Basic information:

1. Program title: Master 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 M.Sc. 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.

Comment [A1]: Not measurable

Comment [A2]: Not measurable

Comment [A3]: Not measurable

Comment [A4]: Not measurable

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.

**Comment [A5]:** General skills not intellectual

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.

**Comment [A6]:** Not measurable as a verb

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, Ain Shams University.

3/3 -----

4. References "benchmark"

4/1 Academic Reference Standards (ARS) from NQAAC

4/2 -----

4/3 -----

**Comment [A7]:** Kindly check my remark in undergraduate program for these points

5. Structure and content of the program:

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

B- Structure of the program: --1<sup>st</sup> Part, Thesis followed by--2<sup>nd</sup> Part .

-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 Ms. 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-Businessmen (Stakeholders)	-----	Not yet determined
4-External evaluator or Examiner	Review program and courses. Attending the final exam	Once before implementation
5-Other methods	Annual program reviewer	

Coordinator of the program: Prof. MoustafaAbdelnasser

Signature: *M. Abdelnasser*

Date: Dec 2014