



State of Libya

University of Benghazi



Faculty of Medicine

Department of Medical Microbiology

## **Master Degree (MSc) Program in Medical Microbiology**

### **COURSE SPECIFICATION & DETAILES:**

- Program title: Master (MSc) degree in Medical Microbiology
- Department offering the programme: Medical Microbiology
- Program duration: total of three years as: 3 semesters / 6 months for each semester plus one year and a half for research project proposal, practical conduct, data processing and dissertation.
- 1 credit hour of theoretical lectures= 1 hour of student-tutor direct contact in classroom.
- 1 credit hour of practical lectures= 3 hours teaching out of classroom.
- Total teaching hours for taught courses: 27 hrs/week of theoretical lectures and 54 hrs of practical lectures/week practical lectures.

### **Aims and objectives of the program:**

The program aims to provide a resourceful scientific knowledge and practical skills to students involved in the program, which can be competently applied in future scientific researches or serving the community through different health institutes& organizations.

### **By the end of the program the students should be able to:**

- Develop a critical understanding and appreciation of medical microbiology.
- Develop skills to efficiently identify problems, formulating hypotheses, designing experiments, interpreting data and drawing conclusions.
- Develop some managerial and research skills required for further professional developments.

- Demonstrate an advanced knowledge and understanding of the nature of viruses, bacteria, fungi and the classification/taxonomy of these microorganisms.
- Comprehend different modes of transmission, growth, life cycles and pathogenesis of clinically important microbes as well as the aftermaths of such infections.
- Understand the mechanisms & mode of action of anti-microbial agents such as anti-bacterial, anti-fungal & anti-viral agents. Also, understand the micro-organisms resistance mechanisms to such anti-microbial agents.
- Critically assess classical and current approaches in the development of therapeutic agents and vaccines for the treatment and prophylaxes of human microbial diseases.
- Understand the basic and advanced aspects of general & clinical immunology.
- Learn and carry out a range of advanced laboratory techniques, including the purification of isolated microbial samples, study of microbial growth cycles and analyses of their proteins and nucleic acids for downstream applications such as gene cloning and sequencing.

**Program structure and duration:**

- The formal teaching sessions (theoretical and practical) are the backbone of this program, which to be in conjunction with some extensive readings, seminars, tutorials, and journal clubs.
- The practical sessions will include visits to microbiology laboratories in health institutes wherein students would learn more about samples collection, storage and processing.
- Shown below is a summary of the courses included in the program:

**1<sup>st</sup> semester: composed of 6 modules as follow:**

<b>Course code</b>	<b>Course title</b>	<b>Theo-lect credit hrs</b>	<b>Pract-credit hrs</b>
MP-25.1	Introduction, Microbial structure & nomenclature	3	1
MP-25.2	Microbial growth & metabolism	2	3
MP-25.3	Control of microorganisms	2	1
MP25.4	Genetic & molecular biology	1	1
MP25.5	Pathogenesis of infectious diseases	2	-
MP25.6	Basic immunology part-I & part II	2	2
<b>Total credit hours</b>		<b>12</b>	<b>8</b>
		<b>20</b>	

**2<sup>nd</sup> semester: composed of 4 modules as follow:**

<b>Course code</b>	<b>Course title</b>	<b>Theo-lect credit hrs</b>	<b>Pract-credit hrs</b>
MP-25.7	Bacterial & fungal infectious diseases	3	2
MP-25.8	Viruses & viral infectious diseases	3	1
MP-25.9	Clinical immunology part I & II	2	1
MP25.10	Molecular & immunological basis of the diagnosis of infectious disease	1	2
<b>Total credit hours</b>		<b>9</b>	<b>6</b>
		<b>15</b>	

**3<sup>rd</sup> semester: composed of 5 modules as follow:**

<b><i>Course code</i></b>	<b><i>Course title</i></b>	<b><i>Theo-lect credit hrs</i></b>	<b><i>Pract-credit hrs</i></b>
MP-25.11	Epidemiology & disease control	1	-
MP-25.12	Infective syndromes	2	1
MP-25.13	Food, water & public health microbiology	1	1
MP-25.14	Nosocomial infections	1	1
MP25.15	- Research methodology - Research ethics - Management skills	1	1
<b>Total credit hours</b>		<b>6</b>	<b>4</b>
		<b>10</b>	

**Research project & Dissertation:**

<b><i>Course code</i></b>	<b><i>Course title</i></b>	<b><i>credit hrs</i></b>
MP-25.16	Dissertation (research project)	6
<b>Total credit hours</b>		<b>6</b>

## Summary

<i>Course code</i>	<i>Course title</i>	<i>Total credit hrs</i>	
MP-25.17	MSc in medical Microbiology	Theoretical	Practical
		<b>27</b>	<b>18</b>
		<b>45 credit hrs</b> taught modules + <b>6 credit hrs</b> dissertation = <b>51 credit hrs</b>	

## Evaluations and marking system:

The evaluation for each course in a semester is based on attendance to theoretical and practical lectures, assessment examination, and final examinations as follow:

<i>Category</i>	<i>Marks value</i>
Attendance	10 marks
Paper I (MCQ)	50 marks
Paper II (short essays)	50 marks
Practical examination (problem based)	40 marks
Oral examination	20 marks
Assessment	30 marks
<b>Total 200 marks</b>	

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Postgraduate studiesCoordinator:

**Revised and approved by:**

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Head of department of Medical Microbiology:

