



Quality Assurance Unit



**Tanta University
Faculty of Medicine**

**Department of Medical Microbiology and
Immunology**

Course Specifications

2016-2017

Course specifications

University: Tanta

Faculty: Medicine

Department: Medical Microbiology and Immunology

1- Administrative Information

- Course title :Medical Microbiology and Immunology
- Code: TMED.03:03
- Department offering the course: Medical Microbiology and Immunology Department
- Program (s) on which this course : M.B.B.Ch
- Departments offering the program: Medical Microbiology and Immunology Department
- Academic year/ Level: 2016- 2017/ Level: Third year of M.B.B.Ch
- Semester in which the course is given: 1 academic year from September through April.
- Date of Course specifications /revision: 8/8/2016
- Date of approval by departmental/faculty council : 8/8/2016
- Taught hours: 150 contact hours + 60 tutorial hours
 - Lectures : 90 , 3 hours/week
 - Practical : 60 , 2 hours/week
 - Total : 150, 5 hours/week + Tutorial 60, 2 hours/week

2 – Overall Course Aims

- To provide students the basic concepts of bacterial, viral and fungal morphology, metabolism, physiology, genetics, and induced diseases, especially endemic in the locality: their transmission, laboratory diagnosis, treatment, prophylaxis and control. It also aimed at helping the students know and understand the effect of different antimicrobial agents on each organism as well.
- To provide students with the essential knowledge of the structure and function of the immune system, mechanism of immunity and immune mediated diseases as well as the different methods used to diagnose and control such diseases.

- To make students aware of the different nosocomial infections and their mode of transmission and to familiarize students with the different principles of sterilization and infection control.

3– Intended learning outcomes (ILOs):

a- knowledge and understanding:

- a.1- Recognize general (bacterial, viral, fungal) morphology, cell structure, physiology and genetics.
- a2- Determine the principles of growing and cultivating microorganisms, the scientific basis of using antimicrobial agents, their mode of action, application and complications in vivo and in vitro as well as the host parasite relationship and microbial virulence and pathogenesis.
- a3- Describe the physiology of the immune system, its structure, normal function, beneficial and harmful reactions, in addition to the principle of different serological and molecular techniques used in diagnosis.
- a4- Identify and Differentiate microorganisms of medical importance, their virulence, pathogenesis, clinical diseases they cause, diagnosis, treatment, prevention and control
- a5- Define nosocomial infections, principles and methods of decontamination, disinfection and sterilization as well as the danger of handling and use of infectious agents on community.

b- Intellectual skills

- b1- Compare between microorganisms (bacterium, virus or fungus), their structure and products.
- b2-Distinguish different laboratory procedures necessary to approach diagnosis of the common infectious clinical conditions with prioritization of the most appropriate and most cost effective tests to be used.
- b3-Solve some common microbiologically related medical problems and interpret results and reports of microbiological, serological, immunological and molecular tests.
- b4-Predict the appropriate antibiotics used in treatment of each disease and the suitable sterilization, disinfection and infection control procedures used in laboratories and hospitals.

c- Professional & practical skills

c1- Demonstrate and perform simple, Gram and Zeihl- Neelsen stains of the most medically important bacteria and identify according to morphology and the characteristics of stained preparations.

c2- Demonstrate culture media (with and without growth), the different biochemical tests used to identify bacteria and diagnose infectious diseases and antibiograms used for choice of proper antibiotics.

c3- Solve some common microbiologically related medical problems and interpret some antigen antibody or molecular tests

c4-Demonstrate different methods of sterilization, disinfection and infection control.

d-General transferable skills

d.1- Able to deal with information technology.

d.2- Communicate effectively with all potential health care providers

d.3- Collaborate with his colleagues in a team work inside the lab, as well as solving problems.

4- Topics (Contents of the course)

Topic	No. of hrs.			Tutorial sessions
	Lectures	Practical and small group demonstrations	Total	
<u>First volume</u>				
<u>I) General bacteriology</u>	<u>14</u>	<u>14</u>	<u>28</u>	<u>10</u>
<u>1. Introduction</u>	<u>1</u>	<u>-</u>	<u>1</u>	<u>-</u>
<u>2. Morphology and structure</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>
<u>3. Physiology and metabolism</u>	<u>2</u>	<u>-</u>	<u>2</u>	<u>2</u>
<u>4. General methods for identification of bacteria</u>	<u>-</u>	<u>6</u>	<u>6</u>	

<u>5. Microbial genetics</u>	<u>2</u>	-	<u>2</u>	<u>2</u>
<u>6. Sterilization</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>
<u>7. Chemotherapy</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>
<u>8. infection and resistance & Host parasite relationship</u>	<u>1</u>	-	<u>1</u>	<u>1</u>
<u>REVISION</u>	<u>2</u>	<u>2</u>	<u>4</u>	-
I) Immunology	<u>16</u>	<u>8</u>	<u>26</u>	<u>18</u>
<u>1. cells of immune response</u>	<u>1</u>	-	<u>1</u>	<u>1</u>
<u>2. Antigens</u>	<u>1</u>	-	<u>1</u>	<u>2</u>
<u>3. Innate immunity</u>	<u>1</u>	-	<u>1</u>	<u>2</u>
<u>4. Acquired immunity and cytokines</u>	<u>2</u>	-	<u>2</u>	<u>2</u>
<u>5. Humoral immune response</u>	<u>2</u>	-	<u>2</u>	<u>2</u>
<u>6. Complement system</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>
<u>7. Host defense against infection and cancer</u>	<u>1</u>	-	<u>1</u>	<u>2</u>
<u>8. Hypersensitivity</u>	<u>2</u>	-	<u>2</u>	<u>2</u>
<u>9. Tolerance, autoimmunity, Immunodeficiency, Transplantation and graft rejection</u>	<u>1</u>	-	<u>2</u>	<u>2</u>
<u>10. Antigen – antibody reactions</u>	<u>2</u>	<u>4</u>	<u>6</u>	<u>2</u>
<u>REVISION</u>	<u>2</u>	<u>2</u>	<u>4</u>	-
III) General virology	<u>4</u>	<u>2</u>	-	<u>2</u>
IV) General mycology	<u>1</u>	-	-	<u>1</u>
<u>REVISION</u>	<u>2</u>	<u>2</u>	<u>4</u>	-
<u>Second volume</u>				
I) Systemic bacteriology	<u>28</u>	<u>26</u>	<u>59</u>	<u>29</u>
<u>1. Introduction</u>	<u>1</u>	-	<u>1</u>	-

<u>2. Staphylococci</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>
<u>3. Streptococci & pneumococci</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>
<u>4. Nisseria</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>
<u>5. Mycobacterium group</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>2</u>
<u>6. Bacillus group</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>1</u>
<u>7. Corynebacteria</u>	<u>1</u>	<u>2</u>	<u>4</u>	<u>1</u>
<u>8. Clostridium group</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>
<u>9. Enterobacteriaceae & Pseudomonas</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>4</u>
<u>10. Vibrio & Campylobacter</u>	<u>1</u>	-	<u>1</u>	<u>1</u>
<u>11.H.Pylori</u>	<u>1</u>	-	-	<u>1</u>
<u>12. Legionella, bacteroids & lactobacilli</u>	<u>1</u>	-	<u>1</u>	<u>1</u>
<u>13. Brucella</u>	<u>1</u>	-	<u>1</u>	<u>2</u>
<u>14.Yersinia & bordetella</u>	<u>1</u>	-	<u>2</u>	<u>1</u>
<u>15. Haemophilus</u>	<u>1</u>	-	-	<u>1</u>
<u>16. Spirochetes</u>	<u>2</u>	-	<u>2</u>	<u>2</u>
<u>17. Rickettsia</u>	<u>1</u>	-	<u>2</u>	<u>2</u>
<u>18. Chlamydia & Mycoplasma</u>	<u>1</u>	-	<u>3</u>	<u>2</u>
<u>REVISION</u>	<u>2</u>	<u>2</u>	<u>5</u>	-
<u>II) Systemic Mycology</u>	<u>3</u>	<u>1</u>	<u>3</u>	-
<u>III) Systemic Virology</u>	<u>6</u>	-	<u>6</u>	-
<u>IV) Infection control & Nosocomial Infection</u>	<u>2</u>	<u>2</u>	<u>4</u>	<u>1</u>
<u>V) Applied Microbiology</u>	<u>2</u>	-	<u>2</u>	-
<u>REVISION</u>	<u>2</u>	<u>10</u>	<u>12</u>	-

5-Teaching and learning methods

- 5.1. Lectures: Large group plenary sessions including 3 lectures will be held weekly at lecture theaters throughout the academic year according to the pronounced faculty schedule. They will set the scene for a topic, highlight important issues and direct the attention to different Immunological disorders and microbial diseases.
- 5.2. Practical classes: students will be divided into eighteen groups; each group will have one practical class per week throughout the academic year according to the pronounced faculty schedule. Tutors will explain the background and basic information of the different microbiological laboratory procedures and tests used then students will be divided into small groups, 25 each to demonstrate them under supervision. Case study and problem solving discussion will also be carried out.
- 5.3. Tutorial: For reviewing important issues and microbiological laboratory tests using data show and movies.
- 5.4. Office hours: Each staff member will dedicate at least 2 hours weekly, during this time. He/she will be available for any inquires from the students. The students will be informed regarding the exact time of office hours for each staff member.
- 5.5. Self learning: through E-learning and presentations.

6-Student Assessment :

a) Methods used

1. Attendance criteria: Students should attend not less than 75% of practical classes as an essential prerequisite to be legible for the final exams.
2. Written Examination (mid-year and final) to assess a1-a5, b1-b4 and c3.
3. Oral examination to assess a1-a5, b1-b4 and d2.
4. Practical examination to assess b1-b4 and c1-c4
5. Semester work and log books to assess a1-a5, b1-b4 and d1-d3.

b) Assessment schedule

Assessment	Week
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1-A Mid-year examination.	February. It includes: one hour written examination composed of MCQ, match, true and false, complete, compare, illustrate or short essay-type questions.
2- Final examination	The end of the academic year (May- June). It includes: <ul style="list-style-type: none"> • Written examination: A 3-hour written paper composed of case study/problem solving, short essay-type questions and MCQ type questions. • Oral examination: One oral examination station with 2 staff members. • Practical examination: - Eight spots include (slides, culture media, biochemical reactions, serological tests, instruments, photos with short complete or MCQ type questions) and one OSPE station (objective structural practical exam).
3- Semester work	Through out the academic year. It Includes: periodical examinations and presentations.
4- Log book	Through out the academic year.

c- Weighing of assessments

Exam	Marks	% of Total
Mid term examination	20	10%
Final term written examination	100	50 %
Oral examination	30	15%
Practical/laboratory work	30	15 %
Semester work	20	10 %
Total	200	100%

d) Attendance criteria:

1. Practical attendance: Students should attend not less than 75% of practical classes as an essential prerequisite to be legible for the practical exam.
2. Practical books: including lab. Manual and logbook.

-E) Grading System

Examination	Topic	Description	Marks
Periodical Examinations	MCQ examinations	Throughout the academic year 3 Quiz (MCQs) (each 5 marks)	15
Projects	Presentation, workshops, posters, role play or self-teaching	Throughout the academic year, students will be classified into groups then choose related subjects to be presented in front of staff members who evaluate them.	5
Mid-term exam	Written examination	February. MCQ, match, true and false, complete, compare, illustrate or short essay-type questions in general bacteriology, immunology, general virology & general mycology.	20
Final Examination	Written (3-hours- one paper)	May-June. Short essay-type, MCQ type questions and case study/problem solving in general, and systemic bacteriology, mycology and virology, infection control & applied microbiology.	100
	Practical exam	Eight spots include (slides, culture media, biochemical reactions, serological tests,	30

		instruments, photos with complete or MCQ type questions) and one OSPE station.
	Oral exam	One oral examination station with 2 staff members. 30

7- List of references

7.1 Course notes

MEDICAL MICROBIOLOGY & IMMUNOLOGY: Department theoretical books and practical manual (4 volumes) available for students to purchase from different bookshops at the faculty.

7.2 Text book

Jawetz, Melnick and Adelber's Medical microbiology

7.3 Recommended books

Mackie and McCartney practical medical microbiology - Koneman, Allen and Janda color atlas and text book of diagnostic microbiology.

7.4 Periodicals and web sites

- <http://www.asm.org/>
- <http://www.phages.org/>
- <http://www.microbeworld.org/>
- <http://www.microbelibrary.org/>
- <http://www.cdc.gov/hepatitis/index.htm>
- <http://pathmicro.med.sc.edu/book/welcome.htm>

9- Facilities Required for Teaching and Learning

Facilities used for teaching this course include:

Lecture halls

Laboratories (with sinks, instruments and microscopes)

Small group areas (rooms) equipped with computer assistance and data shows

Course coordinator	
Name- Dr. Azza Mahmoud Hassan	-signature....._Date.....
Head of department	
Name Prof. Mohamed Zakaria Hussien	-signature..... Date.....

