Master (M.Sc.) Degree Program and Courses Specifications for Medical Microbiology and Immunology

(According to currently applied Credit point bylaws)

Medical Microbiology and Immunology Department
Faculty of medicine
Assiut University
2022-2023

Contents

Master degree of Medical Microbiology and Immunology

A. Basic Information

- **Program Title:** Master degree of Medical Microbiology and Immunology
- **Nature of the program: Single.**
- **Responsible Department:** Medical Microbiology and Immunology Department
- **Program Academic Director (Head of the Department):** Prof. Noha Afifi
  - **Coordinator (s): Principle coordinator:**
    Prof. Enas Abd Elmageed Daef
    Assistant coordinator (s):
    Prof. Mohamed Aly Al Feky
    Prof. Mona Amin Hassan
    Prof. Noha Abdel-Haleem Afifi
    Prof. Nahla Mohamed K. El-Sherbeny
    Dr. Mona Hussein Mohammed
    Dr. Omnia Hassan Bakr
- **Internal evaluators:** Prof. Shaban Hashem.
  Prof. Ismail Sedik.
- **External evaluator**

  1 –Prof. Wafaa Khairy (Minia University)
  2 – Prof. Mona Fatouh (Sohag University)
- **Date of Approval by the Faculty of Medicine Council of Assiut University: 23/9/2014**
- **Date of most recent approval by the Faculty of Medicine Council: 27/11/2022**
- **Total number of courses: 3 courses+ 1 elective course**

B. Professional Information

1- Program aims

1/1 Extensive coverage of the following topics: bacteriology, virology and mycology, bacterial pathogenicity, immunology, molecular biology, microbial disease – diagnosis, treatment and prevention, antimicrobials and chemotherapy, epidemiology and hospital acquired infection.

1/2 To enable the candidates to practice the principles of sterilization and infection control.

1/3 To enable candidates to keep with international standards of Bacteriology and common infectious diseases by teaching them high level of practical skills, update their medical knowledge and stress upon applied Microbiology.

1/4 Update candidates in the field of research as area of molecular biology and cytogenetic studies as well as genes and/or immunotherapy.

1/5 The acquisition of life-long habits of reading, literature searches, consultation with colleagues, attendance at scientific meetings, and the presentation of scientific work that are essential for continuing professional development (CPD).

1/6 Enable them to work effectively, in partnership with other health professionals, support staff and service users.

1/7 Enable them to understand and get the best of published scientific research and do their own.

2- Intended learning outcomes (ILOs) *for the whole program*:

2- Intended learning outcomes (ILOs) *for the whole program*:

2/1 Knowledge and understanding:

A. Explain essential facts and principles of relevant basic sciences including Public Health (Epidemiology and biostatistics) related to medical microbiology and immunology.

B. Mention essential facts and principles of clinical supportive sciences including Basics of infection control and immunology which are related to medical Microbiology & Immunology.

C. Demonstrate sufficient knowledge of the main subjects including diagnosis and management of bacterial, viral or fungal infections related to medical microbiology and immunology.

D. Give the recent and update developments in the most important themes related to medical Microbiology and Immunology.

E. Mention the basic ethical and medicolegal principles that should be applied in practice and relevant to medical Microbiology and Immunology.

F. Mention the basics and standards of quality assurance to ensure good practice in the field of medical Microbiology and Immunology.

G. Mention the ethical and scientific principles of medical research methodology.

H. State the impact of common problems related to the field of medical Microbiology and Immunology on the society and how good practice can improve these problems.

2/2 Intellectual outcomes

A. Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, Diagnosis and management of common Infectious diseases (bacterial, viral and fungal), immunological and genetic disorders related to medical microbiology and immunology.

B. Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to medical Microbiology and Immunology.

C. Design and /or present a case or review (through seminars/journal clubs) in one or more of common themes or problems relevant to medical Microbiology and Immunology.

D. Formulate management plans and alternative decisions in different situations in the field of medical microbiology and Immunology.

2/3 Skills

2/3/1 Practical skills

A. Demonstrate competently relevant laboratory skills related to medical Microbiology & Immunology.

B. Use the up to date technology for the following conditions related to medical Microbiology & Immunology.

C. Develop plans for performing experiments related to medical microbiology and immunology.

D. Carry out common experiments related to medical microbiology and immunology.

E. Counsel and educate students, technicians and junior staff, in the lab about conditions related to medical microbiology and immunology including handling of samples, devices, safety and maintenance of laboratory equipments.

F. Use information technology in situations related to medical microbiology and immunology.

G. Share in providing health care services aimed supporting patient care, solving health problems and better understanding of the normal structure and function.

H. Write competently all forms of professional reports related to Medical Microbiology & Immunology (lab reports, experiments reports).

2/3/2 General skills

Including:

1. Practice-based Learning and Improvement
2. Interpersonal and Communication Skills
3. Professionalism
4. Systems-based Practice

Practice-Based Learning and Improvement

A. Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).

B. Appraises evidence from scientific studies.

C. Conduct epidemiological Studies and surveys.

D. Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.

E. Facilitate learning of students, lab technical staff and other health care professionals including their evaluation and assessment.

Interpersonal and Communication Skills

F. Maintain therapeutic and ethically sound relationship with patients, their families, lab technical staff and other health professionals.

G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.

H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.

I. Work effectively with others as a member of a team or other professional group.

Professionalism

J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of Microbiology & Immunology and society.

K. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices.

L. Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities.

Systems-Based Practice

M. Work effectively in relevant academic and health care delivery settings and systems including good administrative and time management.

N. Adopt cost-effective practice and resource allocation that does not compromise quality of services.

O. Assist patients in dealing with system complexities.

3- Program Academic Reference Standards (ARS) (Annex 2)

Academic standards for master degree in *Medical Microbiology and Immunology*

Assiut Faculty of Medicine developed master degree programs' academic standards for different clinical specialties.

In preparing these standards, the General Academic Reference Standards for post graduate programs (GARS) were adopted. These standards set out the graduate attributes and academic characteristics that are expected to be achieved by the end of the program.

These standards were approved by the Faculty Council on 17-6- 2010. These standards were revised and approved without changes by the Faculty Council on 23-9-2014.These standards were recently revised and reapproved without changes by the Faculty Council on 27-11-2022.

4- Program External References

1. ACGME (Accreditation Council for Graduate Medical Education).http://www.acgme.org/acWebsite/navPages/nav_Public.asp

2. London: University of London, Queen Mary… (MSc in Clinical Microbiology and Immunology).
www.mastersportal.eu › Queen Mary, University of London.

5. Program Structure and Contents

A. Duration of program: 3 – 5 years

B. Structure of the program:

Total number of points: 180 (20 out of them for thesis)
Didactic 34 (18.9%), practical 126 (70%) thesis 20 (11.1%).
Total 180 .

First part

Didactic 10 (25%), practical 30 (75%).Total 40

Second part

Didactic 24 (20%) practical 96 (80%).total 120

<u>According the currently applied bylaws:</u>

Total courses 160 CP
Compulsory courses: 98.9%
Elective course: 2 credit point: 1.1%

	Points	**% from total**
▪ Basic science courses	18	10%
Humanity and social courses	2	1.1%
▪ Speciality courses	140	77.8%
▪ Field training	116	64.4%
Thesis	20	11.1%

C. Program Time Table

A. Duration of program 3 years maximally 5 years divided into

- **Part 1: (One year)**

  Program-related basic science courses and ILOs + elective courses

  Students are allowed to sit the exams of these courses after 12 months from applying to the M Sc degree.

  One elective course can be set during either the 1st or 2nd parts.

- **Thesis**

  For the M Sc thesis;

  MSc thesis subject should be officially registered within 6 months from application to the MSc degree,

  Discussion and acceptance of the thesis could be set after 12 months from registering the MSc subject;

  It should be discussed and accepted before passing the second part of examination)

- **Part 2 (2 years)**

Program –related speciality courses and ILOs

Students are not allowed to sit the exams of these courses before 3 years from applying to the MSc degree.

The students pass if they get 50% from the written exams and 60% from oral and clinical/practical exams of each course and 60% of summation of the written exams, oral and clinical /practical exams of each course

Total degrees 1600 marks.

400 marks for first part

1200 for second part

Written exam 40% - 70%.

Practical and oral exams 30% - 60%.

D. Curriculum Structure : (Courses):

- courses of the program:

Modules/ Units delivering courses and student work load list	Course Code	Core Credit points		
		Didactics	training	total
First Part				
Basic science courses (8CP) **1) Course 1: Public Health (Epidemiology & medical statistics)** **Unit 1: Public Health** **Unit 2: medical statistics**	**MIC209**	4(3+1)	5(1+4)	9
2) Course 2: Basics of Infection Control and Immunology	**MIC207A**	4	5	9
Elective courses*	2CP			
Practical training and scientific activities				
A. Practical training in compulsory academic Basic science courses (10 CP) **Course 1: Public Health (Epidemiology & medical statistics)** **Course 2: Basics of Infection Control and Immunology**		**10 (5 for each course)**		
B. Practical training in Speciality course (20 CP)		**20**		
Total of the first part		**10**	**30**	**40**
Second Part	**Speciality courses** **Speciality Clinical Work**			
Speciality Courses **3) Course 3 Microbiology and Immunology (advanced)**	**MIC207B**	24		
Training and practical activities in Microbiology and Immunology (96 CP)		96		
Total of the second part		**24**	**96**	**120**
Thesis	**20**			
Total of the degree	**180**			

Course 3 Microbiology and Immunology

Units' Titles' list	% from total Marks	Level (Year)	Core Credit points		
			Didactic	training	Total
1) Unit 1 "General Microbiology"	32.1%	1,2	5	40	45
2) Unit 2 " Immunology"	14.3%	1,2	5	15	20
3) Unit 3 " Applied Microbiology"	53.6%	2&3	14	61	75
Total No. of Units:	3	-	24	116	140

 # Didactic (lectures, seminars, tutorial)

* Elective courses can be taken during either the 1st or 2nd parts.

Student work load calculation:

Work load hours are scheduled depending on the type of activities and targeted competences and skills in different courses

Elective Courses#:

- Medical statistics.
- Evidence based medicine.
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
- Quality assurance of medical education
- Quality assurance of clinical practice.
- Hospital management

One of the above-mentioned courses are prerequisites for fulfillment of the degree.

Thesis:

20 CP are appointed to the completion and acceptance of the thesis.

6. Courses Contents (Annex 1)

The competency based objectives for each course/module/rotation are specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

See Annex 1 for detailed specifications for each course/ module

Annex 6 II: Program Matrix

7-Admission requirements

- **Admission Requirements (prerequisites) if any :**

I. General Requirements:

a. MBBCh Degree form any Egyptian Faculties of Medicine
b. Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
c. One-year appointment within responsible department (for non Assiut University based registrars)

II. Specific Requirements:

- Fluent in English (study language)

VACATIONS AND STUDY LEAVE

The current departmental policy is to give working candidate 2 weeks leave prior to first/ second part exams.

FEES:

As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.

8-Progression and completion requirements

- Examinations of the first part could be set at 12 months from registering to the MSc degree.
- Examination of the second part cannot be set before 3 years from registering to the degree.
- Discussion of the MSc thesis could be set after 1 year from officially registering the MSc subject before setting the second part exams.
- The minimum duration of the program is 3 years.

The students are offered the degree when:

1. Passing the exams of all basic science, elective and speciality courses of this program as regulated by the post graduates approved rules by the faculty council.
2. Completing all scheduled CP and log book (minimum 80%).
3. Discussion and acceptance of the MSc thesis.

9- Program assessment methods and rules (Annex IV)

Method	ILOs measured
Written examinations: Structured essay questions Objective questions MCQ Problem solving	K & I
Clinical: Long/short cases OSCE	K ,I, P &G skills
Structured oral	K ,I &G skills
Logbook assessment	All
Research assignment	I &G skills

Weighting of assessments:

Courses		Degrees			
	Course code	Written Exam	Oral Exam	Practical / Clinical Exam	Total
First Part					
Basic academic Courses:					
Course 1: Public Health (Epidemiology & medical statistics)	MIC209	120	40	40	200
Course 2: Basics of Infection Control and Immunology	MIC207A	120	40	40	200
Total of the first part					400
Second Part					
Speciality Courses:					
Course 3 Microbiology and Immunology (advanced)	MIC207B	600(4 papers , 150 marks for each)	300	300	1200
Total of the degree		840	380	380	1600
Elective course		50	50		100

*** 25% of the oral exam for assessment of logbook**

Total degree 1600

400 marks for first part

1200 for second part
Written exam 52.5% (840 marks).
Clinical /practical and oral exams 47.5% (760 marks)

Examination system:

➢ First part:

- Written exam one paper 2 hours in Public Health (Epidemiology & medical statistics) + Oral & Practical exam
- Written exam one paper 2 hours in Basics of Infection Control and Immunology + Oral & Practical exam

➢ Second part:

Written exams four papers 3 hours each in Microbiology and Immunology (advanced) + Oral & Practical exam:

- First paper 3hours in General Microbiology: molecular biology and Infection Control (advanced).
- Second paper 3 hours in Immunology.
- Third paper 3 hours in Applied Medical Microbiology1.
- Fourth paper 3 hours in Applied Medical Microbiology2.

➢ Elective courses

- Written exam one paper 1 hour in Elective course + Oral & Practical exam

10-Program evaluation

By whom	Method	Sample
Quality Assurance Unit	Reports Field visits	#
Internal evaluators	Report	1
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits Questionnaires	#
Senior students	Questionnaires	#
Alumni	Questionnaires	#

#Annex 5 contains evaluation templates and reports.

11-Declaration

We certify that all of the information required to deliver this program is contained in the above specification and will be implemented.

All course specifications for this program are in place.

Contributor	Name	Signature	Date
▪ **Program Principle Coordinator:**	**Prof. Enas Daef**		**5/2022**
▪ **Head of the Responsible Department (Program Academic Director):**	**Prof. Noha Afifi**		**5/2022**

Annex 1, Specifications for Courses / Modules

Annex 1: specifications for courses

Course 1: Public Health (Epidemiology and Medical Statistics)

- **Name of department: Medical Microbiology and Immunology**
- **Faculty of medicine**
- **Assiut University**
- **2022-2023**

I. Course data

- **Course Title: Public Health (Epidemiology and Medical Statistics)**
- **Course code: MIC209**
- **Specialty: Medical Microbiology and Immunology**
  - **Number of credit points (CP): Didactic 4 CP (44.4%) practical 5 CP (55.6%). Total 9 CP (100%).**

Department (s) delivering the course: Public Health Department in conjunction with Medical Microbiology and Immunology Department.

- **Coordinator (s):**
  - **Course coordinator:** Prof. Enas Abdel Mageed Daef

Assistant coordinator (s) Prof. Ahmed Sadek Ahmed
Prof. Mohamed Aly Al Feky
Prof. Mona Amin Hassan
Prof. Noha Abdel-Haleem Afifi
Prof. Nahla Mohamed K. El-Sherbeny
Dr. Mona Hussein
Dr. Omnia Hassan

- **Date last reviewed: 5-2022**
- **General requirements (prerequisites) if any:**

-Grade good in the final exam from approved faculty of Medicine (except for students from abroad).
- Completed his intern year after graduation from medical school
- One-year appointment within responsible department (for non Assiut University based registrars)

- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

1. Acquire a basic knowledge which is necessary for understanding principles of epidemiology and medical statistics.

2. Apply this knowledge to analysis of common infection problems.

3. Be able to communicate their ideas in a written format;

4. Become adept at retrieving and assimilating information from a variety of electronic and text sources;

5. Learn to solve problems as a group.

3. Course intending learning outcomes (ILOs):

Module 1: Epidemiology

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A. Describe common clinical conditions and diseases related to epidemiology of infectious diseases including the following: - Bacterial infections; e.g. Tuberculosis, Cerebrospinal meningitis, Brucellosis, Typhoid fever, Food poisoning. - Viral infections; e.g. Measles, Mumps, Rubella, Hepatitis, Influenza, AIDS. - Environmental sanitation e.g. Water purification, Sanitary sewage disposal, Sanitary refuse disposal. -Laboratory examination of food handlers.	Didactic (lectures) -Critically appraised topic, Educational prescription	Written exam Log book Oral exam Written exam
B. Mention the following factual basics and principles essential to Epidemiology of infectious diseases: - Bacterial infections: e.g. Tuberculosis, Cerebrospinal meningitis, Brucellosis, Typhoid fever, Food poisoning. - Viral infections e.g. Measles, Mumps, Rubella, Hepatitis, Influenza, AIDS. - Environmental sanitation: e.g. Water purification, Sanitary sewage disposal, Sanitary refuse disposal, Laboratory examination of food handlers.		

C. State update and evidence based Knowledge related to Epidemiology of infectious diseases and Environmental sanitation.		
D. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to epidemiology including: diagnosis of infectious diseases.		
E. Mention the basic ethical and medicolegal principles revenant to the epidemiology as: examination of food handlers and environmental sanitation.		
F. Mention the basics of quality assurance to ensure good professional skills in diagnosis of Epidemiology of infectious diseases and Environmental sanitation.		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of common problems related to the field of speciality on the society and how good practice can improve these problems as prevelance of infectious diseases and Environmental sanitation.		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A.Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to Epidemiology of infectious diseases and Environmental sanitation.	Didactic (lectures) -Critically appraised topic, Educational prescription	Written exam Log book Oral exam
B.Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to environmental sanitations and conditions relevance to modes of transmission, causative agents, diagnosis, treatment, prophylaxis and control of infectious diseases.		
C.Design and present audits, cases, seminars in common problems related to Epidemiology of infectious diseases and Environmental sanitation.		
D. Formulate management plans and alternative decisions in different situations in the field of Epidemiology of infectious diseases and Environmental sanitation.		

C. Practical skills

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Use information technology to support decisions in common situations related to -Various prevention strategies for infectious diseases -Different used techniques and approaches for the following: Water purification, Sanitary sewage disposal, Sanitary refuse disposal, Laboratory examination of food handlers.	Problem solving Practical work	log book - Objective structure Practical exam

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (audit, logbook) for Prevention of infectious diseases and tracing the source of outbreaks of food poisoning and nosocomial infections.	supervision Written & oral communication	Log Book
B. Appraises evidence from scientific studies Researches and evidence based practice and internet updates.		
C. participates in one audit or survey related to epidemiology of infectious diseases and tracing the source of outbreaks of food poisoning and nosocomial infections.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with others.	Observation & supervision	Portfolio Simulation Record review (report
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in seminars.		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
K. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation & supervision Didactic (lectures) Educational prescription	1.Objective structured practical examination 2.Student survey
L. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		
M. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
N. Work effectively in relevant health care delivery settings and systems Like surveillance.	Observation & supervision Didactic (lectures) Educational prescription	1-student survey 2. portfolios
O. Practice cost-effective health care and resource allocation that does not compromise quality of care.		
P. Assist patients in dealing with system complexities.		

Module 2: Medical Statistics

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A.Describe common clinical conditions and diseases related to medical statistics.	-didactic (lectures) -Critically appraised topic, Educational prescription	Portfolios Log book Oral exam Written exam
B. Mention the following factual basics and principles essential to medical statistics including the following: -Methods of data collection. -Methods of data presentation. -Methods of data analysis and vital statistics.		
C. State update and evidence based Knowledge related to medical statistics as: methods of data analysis.		
D.Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to medical statistics .		
E.Mention the basic ethical and medicolegal principles revenant to medical statistics as data collection.		
F.Mention the basics of quality assurance to ensure good professional skills in data analysis and presentation.		
G.Mention the ethical and scientific principles of medical research		
H.State the impact of common problems related to the field of speciality on the society and how good practice can improve these problems.		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A. Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to methods of data collection, analysis and presentation.	Didactic (lectures) -Critically appraised topic, Educational prescription, Practical teaching, seminar.	Portfolios Log book Oral exam Written Exam
B.Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to methods of data analysis.		
C.Design and present audits, cases, seminars in common problems related to methods of data analysis and presentation.		
D. Formulate management plans and alternative decisions in different situations in the field of methods of data analysis and presentation.		

C. Practical skills

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A.perform the following basic medical statistical skills including management of the following: - Data presentation: a) Numerical presentation. b) Graphical presentation. c) Mathematical presentation. - Data analysis (analytic statistics or tests of significance). - Population sample. - Vital statistics.	-Problem solving. Exercise.	Log book Objective structure Practical exam
B. use suitable statistical tests for data analysis.		
C. Interpret the methods and tests related to medical statistics including the following : - Data collection. - Data presentation: a) Numerical presentation.		

b) Graphical presentation. c) Mathematical presentation. - Data analysis (analytic statistics or tests of significance). - Population samples. - Vital statistics.		
D. Perform the statistical methods and tests that are mentioned in CC.		
E.Write and evaluate of the following reports: - Data analysis (analytic statistics or tests of significance). - Population samples. - Vital statistics		
F.Perform the following basic experiments in related basic sciences to be utilized in the research work: - Data presentation: a) Numerical presentation. b) Graphical presentation. c) Mathematical presentation. - Data analysis.		
G. Use information technology to support decisions in common situations related to analysis of data related to infectious diseases.		
H. Develop and carry out plans for performing experiments related to analysis of data related to infectious diseases.		
I. Counsel and educate students, technicians and junior staff, about conditions related medical statistics including data collection, analysis and presentation.		
J. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (audit, logbook) for Data collection, analysis and interpretation.	supervision Written & oral communication	Log book
B. Appraises evidence from scientific studies.		
C. participate in one audit or survey related to medical statistics of infectious diseases.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with others.	supervision Written & oral communication	Simulation Record review (report logbook
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of infection control team or another professional group.		
J. Present data in seminars.		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
K. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation & supervision Didactic) Educational prescription	1.Objective structured practical examination 2.Student survey
L. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		
M. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
N. Work effectively in relevant health care delivery settings and systems as statistical analysis of patients' data.	Observation & supervision Didactic (lectures) Educational prescription	1-student survey 2.portfolios
O. Practice cost-effective health care and resource allocation that does not compromise quality of care.		
P. Assist patients in dealing with system complexities.		

4. Course contents (topic s/modules/rotation Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Module 1: Epidemiology				
Epidemiology of infectious diseases	A-D, F-H	A-D	G/A	A-J, L-Q K-P
Environmental sanitation	A-C, E-H	A-D	G/A	A-J, L-Q K-P
Module 2: Medical Statistics				
Data collection	B,E,G	A	C,D,I,J	A-J, L-Q K-P
Data presentation	B,F,G	A,C,D	A,C,D,F,I	A-J, L-Q K-P
Data analysis	B,C,F,G	A-D	A-J	A-J, L-Q K-P

5. Course Methods of teaching/learning:

1. Lectures, didactics
2. Assignments
3. Discussion
4. Exercises, practical wok
5. Educational prescription.
6. Seminar.
7. Tutorial.
8. Observations and supervision.
9. Critical appraisal topics.
10. Written and oral communication

6. Course Methods of teaching/learning: for students with poor achievements

1. Extra Didactic (lectures, seminars, tutorial) according to their needs
2. Extra training according to their needs

7. Course assessment methods:

i. Assessment tools:

1. Written examination
2. Oral exam
3. Practical exam
4. Objective structural assessment.
5. Logbook.
6. Portfolio.
7. Simulation.
8. Record, review reports.
9. STUDENT SURVEY.

ii. Time schedule: 1 year

iii. Marks: 200 marks (120 for written +20 for oral +60 for practical)

8. List of references

i. Lectures notes

Department lecture notes

ii. Essential books

- Modern Infectious Disease Epidemiology, 2017
- **Infectious Disease Epidemiology (Oxford Specialist Handbooks in Infectious Diseases) 1st Edition, 2016**
- Basic Biostatistics, B. Burt Gerstman, 2014

iii. Recommended books

- Evidence Based Medicine How to practice and teach. Sharon E. Straus, Paul Glasziou, W. Scott Richardson, R. Brain Haynes, 2018.

iv. Periodicals,Web sites, … etc

- Dissertation workshop open courseware JHSPH.

9. Signatures

Course Coordinator: **Prof. Enas Abdel mageed Daef**	**Head of the Department:** **Prof. Noha Afifi**
Date: 5/2022.	**Date: 5/2022**

Course 2: Basics of Infection Control and Immunology

- **Name of department: Medical Microbiology and Immunology**
- **Faculty of medicine**
- **Assiut University**
- **2022-2023**

I. Course data

- **Course Title: Basics of Infection Control and Immunology**
- **Course code: MIC207A**
  Speciality: Medical Microbiology and Immunology
- **Number of credit points: Didactic 4 (44.4%) practical 5 CP (55.6%). Total 9 CP (100%)**
  - **Department (s) delivering the course: Medical Microbiology and Immunology Department**
- **Coordinator (s):**
  - **Course coordinator: Prof. Enas Daef**
  - **Assistant coordinator (s) Prof. Nahla Kamel**

    Dr. Mona Hussein

    Dr. Omnia Hassan Bakr
- **Date last reviewed: 5-2022**
- **General requirements (prerequisites) if any:**

  -Grade good in the final exam from approved faculty of Medicine (except for students from abroad)
  - Completed his intern year after graduation from medical school
  - One-year appointment within responsible department (for non Assiut University based registrars)
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

2. Course Aims

The candidate is able to acquire the basic knowledge and skills that are essential and appropriate to common infection control and immunology conditions and situations in different aspects of related areas in practice as follows;

- Risk factors of health care associated infections (HAIs)
- Occupational health and safety
- Standard and general infection control measures
- Innate immunity
- Humoral immunity
- The complement system
- Cell-mediated immunity

3. Course intending learning outcomes (ILOs):

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A. Describe the essential concepts and common clinical conditions related of infection control including the following : - Definitions of health care associated infections (HAIs) - Risk factors for HAIs - Organizational structure and job description for IC position - Occupational health and safety	Didactic (lectures, seminars, tutorial) -Journal club, -Critically appraised topic, Educational prescription	Written exam Portfolios Log book Oral exam
B. Mention the following factual basics and principles essential to infection control and immunology: - Basic concepts of infection control -Infection control aspects of occupational health -Standard and general infection control measures -Difference between natural immunity and acquired immunity. -The two limbs of the immune response (antibody mediated and cell mediated) -The cellular cooperation and interaction in an immune response		
C. State update and evidence based Knowledge related to the infection control course: -Definitions of health care associated infections (HAIs) -Occupational health and safety		

-Standard and general infection control measures		
D. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to infection control and immunology including: -Epidemiology of infectious diseases -Genetic control of immune system		
E. Mention the basic ethical and medicolegal principles revenant to the standard and general measures of infection control.		
F. Mention the basics of quality assurance to ensure good professional skills in his field: - Standard and evidence based guidelines for infection control measures -Standard serological tests for diagnosis of infectious diseases.		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of common problems related to the field of infection control on the society and how good practice can improve these problems as: -Hand hygiene and antiseptics -Personal protective equipments (PPE) -Cleaning, disinfection and sterilization -Aseptic techniques - Waste management -Occupational health		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A. Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to infection control and immunology as: -Epidemiology of infectious diseases -Genetic control of immune system	Didactic (lectures, seminars, tutorial) -Journal club, -Critically appraised topic, Educational prescription	1.Portfolios 2.Procedure/stains 3.Log book 4.Oral exam 5.Written exam
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to infection control and immunology as: -Risk factors for HAIs - Occupational health -Standard infection control measures		
C. Design and present audits, cases, seminars in common problems related to health care associated infections.		
D. Formulate management plans and alternative decisions in different situations in the field of infection control and occupational health.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. perform the following basic lab skills essential to infection control: -Isolation and identification of common nosocomial pathogens	- seminar -Direct observation of the practical work	log book - Objective structure
B. use instruments and devices as autoclaves, incubators, and centrifuge for identification of nosocomial pathogens.		
C. Interpret the following non-invasive procedures: -Smear examination -Culture on suitable media -Antibiotic susceptibility tests		
D.Perform the following non-invasive procedures: -Smear preparation and staining -Culture on suitable media -Antibiotic susceptibility testing		
E.Write and evaluate of the following reports: Antimicrobial susceptibility reports		
F.Perform the following basic experiments in related basic sciences to be utilized in the research work: -Culture on different selective media -Preparation of different biochemical reactions		
G. Use information technology to support decisions in common situations related to health care associated infections.		
H. Develop and carry out plans for performing procedures related to health care associated infections.		
I. Counsel and educate students, technicians and junior staff, in the lab about conditions related to identification of nosocomial pathogens; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (audit, logbook) for identification of the common nosocomial pathogens	Log book and supervision Written & oral communication	Log book Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies as researches, evidence based practice and internet updates.	Journal clubs Discussions in seminars	
C. participate in one audit or survey related to the health care associated infections.	Scientific meetings participate in seminars	
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with senior staff, colleagues and technicians.	Observation & supervision	Simulation Record review (report
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
j. Write a report of antimicrobial susceptibility test.		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
K. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation & supervision	Objective structured practical examination 2.Student survey
L. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		
M. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
N. Work effectively in relevant health care delivery settings and systems for diagnosis and management of health care associated infections.	Observation & supervision Educational prescription	1-student survey 2.portfolios
O. Practice cost-effective identification tests and resource allocation that does not compromise quality of care.	Didactic (lectures, seminars, tutorial	
P. Assist patients in dealing with system complexities.		

4. Course contents (topic s/modules/rotation
Course Matrix

Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Basic concepts of infection control (IC)	B	-	-	A-P
Definitions of health care associated infections	A,C	A,C	A-J	A- P
Risk factors for HAIs transmission	A	A,B,C	A-J	A- P
Organizational structure and job description for infection control position	A	-	-	A- P
IC aspects of occupational health and safety	A-C,G	A-D	A-J	A-P
Evidence based guidelines for standard and general IC measures	B,C,E-G	B	A-J	A-P
-Innate immunity	B	A	-	A-P
Humoral immunity	B,F	A	-	A-P
The complement system	B	A	-	A-P
Cell-mediated immunity	B	A	-	A-P

5. Course Methods of teaching/learning:

1. Didactics: Lectures, tutorial,
2. Practical training in Medical Microbiology & Immunology Dep.
3. Practical training in Microbiology Infection Control laboratory of Assiut University Hospitals.
4. Case studies (problem solving).

5. **Seminars, scientific meeting.**
6. **Journal club.**
7. **Educational prescription.**
8. **Critical appraisal topics.**
9. **Observation & supervision**
10. **Discussion**
11. **Written and oral communication.**

6. Course Methods of teaching/learning: for students with poor achievements

a. Extra Didactic (lectures, seminars, tutorial) according to their needs

2. Extra training according to their needs

7. Course assessment methods:

i. Assessment tools:

- Written Examination; including MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.
- Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.
- Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills**.**
- Logbook**.**
- Portfolio**.**
- Simulation.
- Record, review reports.
- Check list on steps of practical training of all steps.
- Practical exam.

ii. Time schedule: 1 year

iii. Marks: 200 Marks (120 marks for written+20 for written+60 for oral).

8. List of references

i. Lectures notes

ii. Essential books

- **ABCs of infection prevention and control, 2018**
- **APIC textbook of infection control and epidemiology, National infection control guidelines, 2018**
- **Sherris & Ryan's Medical Microbiology, 8th edition, 2022**
- **Jawetz, Melnick Adelberg's Medical Microbiology 28th edition, 2019**
- **Kaplan Medical USMLE Step 1, Lecture Notes: Immunology and Microbiology, 2020**

iii. Recommended books

-IFIC Basic Concepts of Infection Control, 2nd Edition - Revised 2011 (Previously published as Infection Control: Basic Concepts and Training)

iv. Periodicals, Web sites, … etc

- Indian journal of Medical Microbiology
- Journal of infectious Diseases
- American Journal of Clinical Microbiology
- Indian Journal of Pathology & Microbiology.
- Annual Review of Microbiology.
- Indian Journal of Medical Research.
- Indian Journal of Immunology.
- American Journal of Epidemiology.
- Clinical Microbiology Reviews.
- Journal of Hospital infection.

9. Signatures

Course Coordinator: **Prof. Enas Abdel-Mageed Daef**	**Head of the Department:** **Prof. Noha Afifi**
Date:	**Date:**

Course 3: Microbiology and Immunology (advanced)

- **Name of department: Medical Microbiology and Immunology**
- **Faculty of medicine**
- **Assiut University**
- **2022-2023**

I. Course data

- **Course Title: Microbiology and Immunology (advanced)**
- **Course code: MIC207B**
- **Specialty: Medical Microbiology and Immunology**
- **Number of credit points: Didactic 24 CP (17.1%) practical 116 CP (82.9%).total 140CP (100%)**
- **Department delivering the course: Medical Microbiology and Immunology**
- **Coordinator (s):**
  - **Course coordinator: Prof. Enas Abdel-Mageed Daef**
  - **Assistant coordinator (s)** Prof. Ahmed Sadek Ahmed
    Prof. Mohamed Aly Al Feky
    Prof. Mona Amin Hassan
    Prof. Noha Afifi
    Prof. Nahla Mohamed Kamel
- **Date last reviewed: 5-2022**
- **General requirements (prerequisites) if any:**

  - Grade good in the final exam from approved faculty of Medicine (except for students from abroad)
  - Completed his intern year after graduation from medical school
  - One-year appointment within responsible department (for non Assiut University based registrars)
- **Requirements from the students to achieve course ILOs are clarified in the joining log book.**

Units' Titles' list	% from total Marks	Level (Year)	Core Credit points		
			Didactic	training	Total
1) Unit 1 "General Microbiology"	32.1%	1,2	5	40	45
2) Unit 2 " Immunology"	14.3%	1,2	5	15	20
3) Unit 3 " Applied Microbiology"	53.6%	2&3	14	61	75

2. Course Aims

2/1-The candidate is able to acquire the basic knowledge and skills that are essential and appropriate to common microbiology and immunology conditions and situations in different aspects of related eras including (general and systematic microbiology, molecular biology, infection control and immunology) in practice as follows;

Module (1): General Microbiology: molecular biology and infection control (advanced):

1. The structure and regulation of DNA & genome
2. Transcription, translation and Protein synthesis
3. Mutation & DNA repair -DNA transfer
4. Genetic engineering and its applications
5. Antimicrobial stewardship
6. Patient safety
7. Pathogens important to infection prevention and control
8. Infection control strategies for multidrug resistant organisms

Module (2): Immunology:

1. MHC and transplantation immunology.
2. Hypersensitivity reactions.
3. Tumor immunology
4. Tolerance and autoimmunity
5. Immunodeficiency disorders

Module (3): Applied Medical Microbiology:

3.1: Bacteriology.

3.2: Virology.

3.3: Mycology.

3. Course intending learning outcomes (ILOs):

Module (1): General Microbiology: molecular biology and infection control (advanced)

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A. Describe common clinical conditions and diseases related to: -Mutation & DNA repair -DNA transfer - Genetic engineering and its applications - Antimicrobial stewardship - Patient safety - Pathogens important to infection prevention and control - Infection control strategies for multidrug resistant.	Didactic (lectures, seminars, tutorial) -Journal club, -Critically appraised topic, Educational prescription Demonstrations	Portfolios Procedure/stains Log book Oral exam Written exam
B. Mention the following factual basics and principles essential to: - Structure and regulation of DNA & genome - Transcription, translation and Protein synthesis - Mutation & DNA repair -DNA transfer		
C. State update and evidence based Knowledge related to: -Mutation & DNA repair -DNA transfer - Genetic engineering and its applications - Antimicrobial stewardship - Patient safety - Pathogens important to infection prevention and control - Infection control strategies for multidrug resistant organisms		

D. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to molecular biology and infection control including: Biochemistry and epidemiology of infectious diseases.		
E. Mention the basic ethical and medicolegal principles revenant to the application of antimicrobial stewardship in medicine and patient safety.		
F. Mention the basics of quality assurance to ensure good professional skills in identification of bacteria, application of infection control strategies for multidrug resistant organisms.		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of common problems related to the field of antimicrobial resistance, genetic mutations and patient safety on the society and how good practice can improve these problems.		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A.Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to genetics, application of antimicrobial stewardship in medicine and other conditions that are mentioned in A.A.	Didactic (lectures) -Critically appraised topic, Educational prescription	Portfolios Log book Oral exam Written Exam
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to identification of bacteria, application of antimicrobial stewardship in medicine and multidrug resistant bacteria.		
C.Design and present audits, cases, seminars in common problems related to identification of bacteria, DNA structure and regulation of transcription and protein synthesis, mutations and DNA repair, genetic engineering, antimicrobial stewardship, multidrug resistant organisms.		
D. Formulate management plans and alternative decisions in different situations in the field of identification of bacteria and antimicrobial resistance.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the following basic lab skills that are essential to infection control and molecular biology as follows : -Identification of nosocomial infecting microorganisms in the following samples at the infection control lab: Urine, endotracheal tube, Sputum, Throat swabs, Stool, Wound swabs, Pus, Blood. -examination of water samples - Monitoring the efficiency of sterilization. -Preparation and performing PCR	- seminar -Direct observation of the practical work	log book - Objective structure -Check list
B. use instruments and devices in evaluation of sterilization of culture media, monitoring efficiency of sterilization, centrifugation of clinical samples, PCR.		
C. Interpret the following noninvasive procedures: -Efficiency of sterilization -Identification of the isolated microorganisms on culture media. -Biochemical reactions. - PCR products.		
D. Perform the following noninvasive procedures: -Preparation, examination and interpretation of direct smears from clinical specimens -Quantitative analysis of urine by pour plate method and semiquantitative analysis by standard loop test for significant bacteriuria. -Plating out of clinical specimens on culture media identification of isolated bacteria. -PCR		
E.Write and evaluate of the reports related to the above mentioned procedures.		
F.Perform the following basic experiments in related basic sciences to be utilized in the research work: -PCR.		
G. Use information technology to support decisions in common		

situations related to primer design and adjusting PCR conditions.		
H. Develop and carry out plans for performing experiments related to primer design and adjusting PCR conditions.		
I. Counsel and educate students, technicians and junior staff, in the lab about conditions related to microbiology; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Perform practice-based improvement activities using systematic methodology (audit, logbook) in sample processing, microscopic examination and culture.	Log book and supervision Written & oral communication Journal clubs Discussions in seminars Scientific meetings participate in seminars	Log book Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies.		
C. participate in one audit or survey related to the multidrug resistant organisms causing health care associated infections.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals about identification of bacteria and molecular methods for detection, antimicrobial stewardship and patient safety.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with colleagues, technicians and other members of the health care team.	Observation & supervision	Simulation Record review (report
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of the Infection control unit team or other professional group.		
J. Present a case in Microbiology.		
K. Write a report about type of organism and antimicrobial sensitivity results.		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
L. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation & supervision Didactic , seminars, tutorial Educational prescription	Objective structured practical examination 2.Student survey
M. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		
N. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
O. Work effectively in relevant health care delivery settings and systems for diagnosis of different infectious diseases.	Observation & supervision Didactic seminars, tutorial Educational prescription	1-student survey 2.portfolios
P. Practice cost-effective health care and resource allocation that does not compromise quality of care.		
Q. Assist patients in dealing with system complexities.		

Module 2: Immunology

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A.Describe common clinical conditions and diseases related to: -MHC and transplantation immunology. -Hypersensitivity reactions. -Tumor immunology -Tolerance and autoimmunity -Immunodeficiency disorders	Didactic (lectures, seminars, tutorial) -Journal club, -Critically appraised topic, Educational prescription	1.Portfolios 2.Procedure/stains 3. Log book 4.Oral exam 5.Written exam
B.Mention the following factual basics and principles essential immunology: - MHC genetic variation - Rejection of transplanted organs - Principle types of hypersensitivity - Tumor antigens - Mechanism of tolerance		
C. State update and evidence based Knowledge related to the immunological processes underlying: - Development of autoimmune diseases -Immune deficiency diseases -Protection against development of tumor -Hypersensitivity or allergic reactions -Rejection of transplanted tissues of organs		
D. Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to immunology including: Genetics controlling transplantation, autoimmune diseases and primary immune deficiency diseases.		
E. Mention the basic ethical and		

medicolegal principles revenant to the treatment of immunological disorders as: - autoimmune diseases -Immune deficiency diseases -Tumors -Hypersensitivity or allergic reactions -Rejection of transplanted tissues of organs		
F. Mention the basics of quality assurance to ensure good professional skills in: - Detection of tumor antigens. -Diagnosis of autoimmune diseases and immune deficiency diseases. -Transplantation -Detection of hypersensitivity allergens.		
G. Mention the ethical and scientific principles of medical research		
H. State the impact of common problems related to the field of immunology on the society and how good practice can improve these problems as: -Hypersensitivity reactions -Graft rejection -Tumors -autoimmune disorders - Immunodeficiency syndromes		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A.Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to: -Protection against development of tumor - Hypersensitivity or allergic reactions - Rejection of transplanted tissues of organs - Development of autoimmune diseases - Immune deficiency diseases	Didactic (lectures, seminars, tutorial) -Journal club, -Critically appraised topic, Educational prescription	1.Portfolios 2.Procedure/stains 3.Log book 4.Oral exam 5.Written exam
B.Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to: -Protection against development of tumor - Hypersensitivity or allergic reactions - Graft rejection - Development of autoimmune diseases - Immune deficiency diseases		
C.Design and present audits, cases, seminars in common problems related to immune disorders.		
D. Formulate management plans and alternative decisions in different situations in the field of immune disorders.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A.perform the following basic lab skills essential to the course: -ELISA -Western blot - Tube agglutination. - Immunofluorescence	- seminar -Direct observation of the practical work	log book - Objective structure
B. use instruments and devices as: - ELISA reader for reading the ELISA plate -Fluorescent microscope for detection of immunoflourescent antibodies.		
C. Interpret the following non invasive procedures: ELISA -Western blot - Tube agglutination. - Immunofluorescence		
D. Perform the following non invasive procedures: - ELISA -Western blot - Tube agglutination. - Immunofluorescence		
E.Write and evaluate of the following reports: -ELISA report -Western blot report - Tube agglutination report - Immunofluorescence report		
F.Perform the following basic experiments in related basic sciences to be utilized in the research work: -Western blot - Immunofluorescence		
G. Use information technology to support decisions in common situations related to Immunology.		
H. Develop and carry out plans for performing experiments related to immunology .		
I. Counsel and educate students, technicians and junior staff, in		

the lab about conditions related to immunology; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook) in ELISA, Western blot, tube agglutination, Immunofluorescence.	Log book and supervision Written & oral communication	Log book Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies.	Journal clubs Discussions in seminars	
C. participate in one audit or survey related to immunology.	Scientific meetings participate in seminars	
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with others.	Observation & supervision	Simulation Record review (report
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case of immunological disorders.		
K. Write a report of ELISA, Western blot or Immunofluorescence.		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
L. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation &supervision	Objective structured practical examination 2.Student survey
M. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		
N. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
O. Work effectively in relevant health care delivery settings and systems.	Observation & supervision Educational prescription	1-student survey 2.portfolios
P. Practice cost-effective health care and resource allocation that does not compromise quality of care in performing special techniques as tube agglutination, ELISA, Western blot and immunofluorescence.	Didactic (lectures, seminars, tutorial	
Q. Assist patients in dealing with system complexities.		

Module 3: Applied Medical Microbiology

Unit 1: Systematic Bacteriology

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A.Describe common clinical conditions and diseases related to pathogenic bacteria as regards to character of pathogenic strain, virulence, mode of transmission, the diagnosis, treatment, prevention and control of the most important infectious clinical conditions, Antimicrobial chemotherapy.	Didactic(lectures, seminars, tutorial) -Journal club, Critically/ Appraised topic, Educational Description	Portfolios Procedure/stains Log book Oral exam Written exam
B.Mention the following factual basics and principles essential to Bacteriology: .Bacterial morphology and structure. . Bacterial physiology and metabolism. .The principle virulence factor(s) of pathogenic strains. ·The mode(s) of transmission ·The key tests for laboratory diagnosis of the microbial diseases ·The main lines of treatment and prophylactic measures		
C.State update and evidence based Knowledge related to bacterial physiology and metabolism, the laboratory diagnosis of the microbial diseases, the new lines of treatment and prophylactic measures		
D.Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to bacteriology including: - Epidemiology of infectious diseases.		

E.Mention the basic ethical and medicolegal principles revenant to the laboratory diagnosis of infectious diseases.		
F.Mention the basics of quality assurance to ensure good professional skills in culture and sensitivity of pathological samples and detection of Antimicrobial resistance.		
G.Mention the ethical and scientific principles of medical research		
H.State the impact of common problems related to the field of bacteriology on the society and how good practice can improve these problems.		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A.Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to diagnosis of infectious diseases as: - Host parasite relationship - Epidemiology of infectious diseases. - Clinical diagnosis of infectious diseases - Genetic basis for antimicrobial resistance.	Didactic (lectures, seminars, tutorial	Written exam; MCQ
B.Demonstrate an investigatory and analytic thinking (problem solving) approaches to laboratory diagnosis of infectious bacterial diseases and proper line of treatment and prevention.		
C.Design and present audits, cases, seminars in common problems related to identification and pathogenesis of bacteria, laboratory diagnosis, treatment, prevention and control of infectious diseases and detection of antimicrobial resistance.		
D. Formulate management plans and alternative decisions in different situations in the field of laboratory diagnosis, treatment, prevention and control of infectious diseases and detection of antimicrobial resistance.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the following basic lab skills essential to bacteriology: • Identification of basic laboratory equipments. • Preparation of bacteriological media used for isolation of pathogenic organisms. • Performance of biochemical reaction needed to confirm diagnosis. • Preparation of stains viz. Gram's, Ziehl –Neelson and other special stains and performing staining. • Washing and sterilization of glassware including plugging and packing. • Operation of autoclave, hot air oven, distillation plant, filters like Seitz and membrane and sterility tests • Care and maintenance of common laboratory equipment like water bath, centrifuge, refrigerators, incubators etc. • Preparation and pouring of liquid and solid media. • Preparation of reagents – oxidase, kovac, etc. • Examination of Microbiological specimens such as blood, urine, throat swab, rectal swab, stool, pus. • Selection and use of the morphology, culture, biochemical reaction, serological and molecular methods for identification of the causative microorganisms (Gram positive and Gram negative cocci and bacilli).	- seminar -Direct observation of the practical work	log book -Objective structure -Check list on steps of practical training
B. use instruments and devices as water bath, centrifuge, refrigerators, incubators, autoclaves etc. used in morphological identification of microorganisms, serological diagnosis, molecular techniques and antimicrobial susceptibility testing.		
C.Interpret the following non invasive procedures as: Staining, Culture, biochemical reactions, serological tests, molecular techniques, antimicrobial susceptibility testing and detection of antimicrobial resistance.		
D.Perform the following non invasive procedures as: Processing of different clinical samples, Staining, Culture, biochemical reactions, serological tests, molecular		

techniques, antimicrobial susceptibility testing and detection of antimicrobial resistance.		
E.Write and evaluate of the following reports: - Serologic tests - Antimicrobial susceptibility testing		
F.Perform the following basic experiments in related basic sciences to be utilized in the research work: B.Various serologic and molecular techniques.		
G. Use information technology to support decisions in common situations related to identification of the pathogenic strains causing the infection and the new lines of diagnosis and treatment.		
H. Develop and carry out plans for performing experiments related to identification of the pathogenic strains causing the infection and the new lines of diagnosis and treatment.		
I. Counsel and educate students, technicians and junior staff, in the lab about conditions related to diagnosis of infectious diseases; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook) Sample processing, microscopic examination, culture, serotyping and molecular diagnosis.	Log book and supervision Written & oral communication Journal clubs Discussions in seminars Scientific meetings	Log book Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies.		
C. participate in one audit or survey related to the laboratory diagnosis of infectious diseases.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.		

Interpersonal and Communication Skills

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
F. Maintain ethically sound relationship with senior staff, colleagues, clinicians and technicians.	Observation & supervision	Simulation Record review (report
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team of Infection control unit.		
J. Present a case in seminars.		
K. Write a report in Infection Control Lab.		

Professionalism

ILOs	***Methods of teaching/ learning***	***Methods of Evaluation***
L. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation & supervision	Objective structured practical examination
M. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices	Didactic (lectures, seminars, tutorial	2.Student survey
N. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities	Educational prescription	

Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
O. Work effectively in relevant health care delivery settings and systems as diagnosis of different infectious diseases.	Observation & supervision Didactic Educational prescription	1-student survey 2.portfolios
P. Practice cost-effective health care and resource allocation that does not compromise quality of care in performing special techniques as special stains, cultures, serological tests and PCR.	Didactic (lectures, seminars, tutorial	
Q. Assist patients in dealing with system complexities.		

Unit 2: Virology

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A.Describe common clinical conditions and diseases related to virology and the different types of viral infections.	Didactic (lectures, seminars, tutorial) -Journal club, -Critically appraised topic,	Portfolios Procedure/stains Log book Oral exam Written exam
B.Mention the following factual basics and principles essential to: - the general characteristics and structures of viruses. - The medically important RNA and DNA Viruses. - The natural habitat, source of infection, mode of transmission and role of carriers. -The pathogenesis and clinical presentation of the associated disease -Methods of laboratory diagnosis -Lines of management and possible prophylactic measures.		
C.State update and evidence based Knowledge related to the methods of laboratory diagnosis, lines of management and possible prophylactic measures.		
D.Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to virology including: Epidemiology of viral diseases.		
E.Mention the basic ethical and medicolegal principles revenant to the diagnosis of viral infections.		
F.Mention the basics of quality assurance to ensure good professional skills for diagnosis of viral infections.		

G.Mention the ethical and scientific principles of medical research		
H.State the impact of common problems related to the field of speciality on the society and how good practice can improve these problems as diagnosis of viral infections.		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A.Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to viruses as role of the immune system in protection against viral infections and other related conditions mentioned above in A.	-Critically appraised topic, -Educational prescription discussion	Oral exam Written exam
B.Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to diagnosis of viral infections.		
C.Design and present audits, cases, seminars in common problems related to virology: viral infections, latent viruses, persistent viral infections and oncogenic viruses , and scheme for laboratory diagnosis and differentiation between living attenuated and inactivated virus vaccines		
D. Formulate management plans and alternative decisions in different situations in the field of the management of viral infections.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A.perform the following basic lab skills essential to the course: -Selection & use different methods of virus purification. -Recognition the suitable method of virus isolation and other laboratory procedures for diagnosis of viral infections	- seminar -Direct observation of the practical work	log book -Objective structure -Check list on steps of practical training
B. use instruments and devices in evaluation of virus purification, isolation and detection of viral antigens and antibodies.		
C.Interpret the following non invasive procedures: -Different methods of virus purification. - Methods of viral isolation. -Serologic diagnosis of viral infections. - Molecular techniques for detection of viruses.		
D.Perform the following non invasive procedures/ experiments: -Different methods of virus purification. - Methods of viral isolation. -Serologic diagnosis of viral infections. - Molecular techniques for detection of viruses.		
E.Write and evaluate reports for diagnosis of viral infections.		
F.Perform the following basic experiments in related basic sciences to be utilized in the research work: Serologic tests, IF, ELISA, tissue culture.		
G. Use information technology to support decisions in common situations related to management and the possible prophylactic measures related to viral infections.		
H. Develop and carry out plans for performing experiments related to management of viral infections.		
I. Counsel and educate students, technicians and junior staff, in the lab about conditions related to virology; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook): Sample processing, tissue culture, serology and molecular diagnosis.	Log book and supervision Written & oral communication Journal clubs	Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies.	Discussions in seminars Scientific meetings	
C. participate in one audit or survey related to virology.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals about diagnosis of viral infections.		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with senior staff, colleagues and technicians.	Observation & supervision	Simulation Record review (report
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group for diagnosis of viral infections.		
J. Present a case in seminar.		
K. Write a report in diagnosis of viral infections.		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
L. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation & supervision Educational prescription	Objective structured practical examination 2.Student survey
M. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices	Didactic (lectures, seminars, tutorial	
N. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
O. Work effectively in relevant health care delivery settings and systems for as diagnosis of different viral diseases.	Observation & supervision Educational prescription	1-student survey 2. portfolios
P. Practice cost-effective health care and resource allocation that does not compromise quality of care in performing special techniques as tissue culture, special serological tests and PCR.	Didactic (lectures, seminars, tutorial	
Q. Assist patients in dealing with system complexities.		

Unit 3: Mycology

A-Knowledge and understanding

ILOs	*Methods of teaching/ Learning*	*Methods of Evaluation*
A.Describe common clinical conditions and diseases related to Mycology as superficial and invasive mycosis.	Didactic (lectures, seminars, tutorial) -Journal club, -Critically appraised topic, - Educational prescription	Portfolios Procedure/stains Log book Oral exam Written exam
B.Mention the following factual basics and principles essential to Mycology : . Classification of fungi. .Pathogenesis of fungal infections. · Laboratory diagnosis of fungal pathogens .Systemic mycosis, subcutaneous mycosis, .Superficial mycosis .opportunistic mycosis.		
C.State update and evidence based Knowledge related to the diagnosis, treatment, prevention and control of fungal diseases.		
D.Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to mycology as role of the immune system in protection against fungal infections and serologic tests and molecular techniques for diagnosis of fungal infections.		
E.Mention the basic ethical and medicolegal principles revenant to the fungal diseases.		
F.Mention the basics of quality assurance to ensure good professional skills for diagnosis of fungal infections		
G.Mention the ethical and scientific principles of medical research		
H.State the impact of common problems related to Mycology on the society and how good practice can improve these problems as management of fungal infections.		

B. Intellectual outcomes

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
A.Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to mycology as role of the immune system in protection against fungal infections, serologic tests and molecular techniques for diagnosis of fungal infections, clinical suspicion of fungal infections..	Didactics seminars	MCQ Written exam logbook
B.Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to identification and diagnosis of fungal infections.		
C.Design and present audits, cases, seminars in common problems related to mycoses and differentiation between them.		
D. Formulate management plans and alternative decisions in different situations in mycosis and differentiation between them.		

C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. perform the following basic lab skills essential to the used methods of laboratory diagnosis of fungal infections (microscopical examination culture, others like germ tube test, sugar assimilation, antifungal susceptibility tests).	- seminar -Direct observation of the practical work	log book - Objective structure -Check list on steps of practical training in practical exam
B. use instruments and devices in in microscopic and macroscopic identification of fungal pathogens.		
C. Interpret the following non invasive procedures/ experiments as: Staining, Culture, sugar assimilation test, germ tube test, antifungal susceptibility tests..		
D. Perform the following non invasive procedures/ experiments as: Staining, Culture, sugar assimilation, germ tube test, antifungal susceptibility tests.		
E.Write and evaluate reports of antifungal susceptibility tests.		
F.Perform the following basic experiments in related basic sciences to be utilized in the research work: Culture and Serologic tests.		
G. Use information technology to support decisions in common situations related to update methods for diagnosis of fungal Infections.		
H. Develop and carry out plans for performing experiments related to methods for diagnosis of fungal Infections.		
I. Counsel and educate students, technicians and junior staff, in the lab about conditions related to diagnosis of fungal Infections; including handling of samples, devices, safety and maintenance of laboratory equipments.		
J. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.		

D. General Skills

Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook): Sample processing, culture, serology and molecular diagnosis.	Log book and supervision Written & oral communication Journal clubs	Portfolios Procedure/case presentation
B. Appraises evidence from scientific studies Researches and evidence based practice and internet updates.	Discussions in seminars Scientific meetings	
C. participate in one audit or survey related to mycosis		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals about diagnosis of fungal infections..		

Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain ethically sound relationship with senior staff, colleagues and technicians..	Observation & supervision	Simulation Record review (report
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in seminars		
K. Write a report in diagnosis of fungal infections in lab.		

Professionalism

ILOs	*Methods of teaching/ learning*	*Methods of Evaluation*
L. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation & supervision Educational prescription Didactic (lectures, seminars, tutorial	Objective structured practical examination 2.Student survey
M. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		
N. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		

Systems-Based Practice

ILOs	**Methods of teaching/ learning**	**Methods of Evaluation**
O. Work effectively in relevant health care delivery settings and systems for diagnosis of different fungal diseases..	Observation & supervision Educational prescription Didactic (lectures, seminars, tutorial	1-student survey 2.portfolios
P. Practice cost-effective health care and resource allocation that does not compromise quality of care in performing special techniques as special serological tests and PCR.		
Q. Assist patients in dealing with system complexities.		

4. Course contents (topic s/modules/rotation
Course Matrix

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Module 1: General Microbiology				
The structure and regulation of DNA & genome	B, D, F	A, C	A-I	A-Q
Transcription, translation and Protein synthesis	B, D, F	A,C	-	A-Q
Mutation & DNA repair - DNA transfer	A, D, E	A,C	-	A-Q
Genetic engineering and its applications	A, E	A,C	-	A-Q
Antimicrobial stewardship	A, C, E, G	A,B,C	-	A-Q
. Patient safety	A, C, E, G	A	-	A-Q
Pathogens important to infection prevention and control	A, B, E, F, H	A,B,C, D	A-E, I	A-Q
Infection control strategies for multidrug resistant organisms	A, B, E, F, H	A,B,C,D	B, C,E,J	A-Q
Module 2: Immunology				
Tumor immunology	A-C,E-H	A-D	A-J	A-Q
Hypersensitivity or allergic reactions	A-C,E-H	A-D	A-J	A-Q
MHC and transplantation immunology.	A-H	A-D	A-J	A-Q
Tolerance & Autoimmune diseases	A-H	A-D	A-J	A-Q
Immune deficiency diseases	A-H	A-D	A-J	A-Q

Module 3: Microbiology and Immunology (advanced) Unit 3.1: Systematic Bacteriology				
Basics of bacterial morphology and structure.	A,B	-	-	A-Q
Bacterial physiology and metabolism.	A-D	C	-	A-Q
Antimicrobial therapy.	A-D, G	A	G	A-Q
Principle virulence factor(s) of pathogenic bacteria	A,B	A,C	G	A-Q
Mode(s) of transmission	A,B,E	A,C	-	A-Q
Laboratory diagnosis of bacterial diseases	A-D,F-I	A-D	A-J	A-Q
Lines of treatment and prophylactic measures	A-D,G-I	A-D	A-J	A-Q
Unit 3.2: Virology				
General characteristics of viruses	B	-	-	A-Q
Basic components and structure of viruses	B	-	-	A-Q
Natural habitat, source of infection, mode of transmission and role of carriers in viral diseases.	A,B,D	A	-	A-Q
Pathogenesis and clinical presentation of viral diseases	A,B,D	C	-	A-Q
Methods of laboratory diagnosis	A-G	B-D	A-J	A-Q
Management and possible prophylactic measures	A-D,F,G	A-D	-	A-Q
Unit 3. 3: Mycology				
Basis of classification of fungi	B	-	-	A-Q
Pathogenesis of fungal	A,B,F	-	-	A-Q

diseases				
Laboratory diagnosis of fungal infections	**A-G**	**A-C**	**A-J**	**A-Q**
Treatment and prophylaxis of fungal infections	**A-G**	**B,C**	**-**	**A-Q**

5. Course Methods of teaching/learning:

1. **Didactics: Lectures, tutorial,**
2. **Practical training in Medical Microbiology & Immunology Dep.**
3. **Practical training in Microbiology Infection Control laboratory of Assiut University Hospitals.**
4. **Case studies (problem solving).**
5. **Seminars, scientific meeting.**
6. **Journal club.**
7. **Educational prescription.**
8. **Critical appraisal topics.**
9. **Observation & supervision**
10. **Discussion**
11. **Written and oral communication**

6. Course Methods of teaching/learning: for students with poor achievements

b. Extra Didactic (lectures, seminars, tutorial) according to their needs

2. Extra training according to their needs

7. Course assessment methods:

i. Assessment tools:

i. Assessment tools:

- Written Examination; including MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.
- Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.
- Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills**.**
- Logbook**.**
- Portfolio**.**
- Simulation.
- Record, review reports.
- Check list on steps of practical training of all steps.
- Practical exam.

ii. Time schedule: 3 years

iii. Marks: 1200 MARKS (600 for written+120 for oral + 480 for practical)

8. List of references

i i. Lectures notes

ii. Essential books

- **Sherris & Ryan's Medical Microbiology, 8th edition, 2022**
- **Jawetz, Melnick Adelberg's Medical Microbiology 28th edition, 2019**
- **Kaplan Medical USMLE Step 1, Lecture Notes 2020: Immunology and Microbiology**
- **Lippincott's Illustrated Review: Microbiology, 2019**
- **Mim's Medical Microbiology and Immunology, Philadelphia, PA, Mosby Elsevier, 6th edition , 2019**
- **Basic immunology by Abul K. Abbas and Andrew H. Lichtman, 10th edition, 2021.**
- ***Janeway's Immunobiology*, 9th edition, 2017**

iii. Recommended books

- **Medical Microbiology. Vol. I to II: Greenwood, Slack, Pleutherer , 16th edition, 2007.**

- Microbiology in Clinical Practice Shanson D.C. 2nd Edition, 2011

iv. Periodicals, Web sites, … etc

- Indian journal of Medical Microbiology
- Journal of infectious Diseases
- American Journal of Clinical Microbiology
- Indian Journal of Pathology & Microbiology.
- Annual Review of Microbiology.
- Indian Journal of Medical Research.
- Indian Journal of Immunology.
- American Journal of Epidemiology.
- Clinical Microbiology Reviews.

Journal of Hospital infection.

9. Signatures

Course Coordinator: **Prof. Enas Abdel-Mageed Daef**	**Head of the Department:** **Prof. Noha Afifi**
Date:	**Date:**

Annex 2, Program academic reference standards

1- Graduate attributes for master degree in Medical Microbiology & Immunology

***The Graduate (after residence training and master degree years of study) must*:**

1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and medical audit in the chosen field of medicine.

2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in Medical Microbiology and Immunology.

3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Medical Microbiology and Immunology.

4- Dealing with common problems and health promotion using updated information in the field of Medical Microbiology and Immunology.

5- Identify and share to solve health problems in Medical Microbiology and Immunology.

6- Acquire all competencies –including the use of recent technologies- that enable him to provide safe, scientific, and ethical care including update use of new technology in the Medical Microbiology and Immunology field.

7- Demonstrate interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community, junior students and the public.

8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.

9- Acquire decision making capabilities in different situations related to his field of practice.

10- Show responsiveness to the larger context of the related health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.

11- Be aware of public health and health policy issues and share in system-based improvement of his practice and related health care.

12- Show appropriate attitudes and professionalism.

13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in the speciality or one of its subspecialties.

2- Competency based Standards for basic master degree graduates

2.1- Knowledge and understanding

By the end of the program, the graduate should demonstrate satisfactory knowledge and understanding of

2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related to Medical Microbiology and Immunology.

2-1-B- The relation between practice in Medical Microbiology and Immunology and the welfare of society.

2-1-C- Up to date and recent developments in common problems related to the field of Medical Microbiology and Immunology.

2-1-D- Ethical and medicolegal principles relevant to practice in Medical Microbiology and Immunology.

2-1-E -Quality assurance principles related to the good medical practice in the Medical Microbiology and Immunology field.

2-1-F- Ethical and scientific basics of medical research.

2.2- Intellectual skills:

By the end of the program, the graduate should be able to demonstrate the following:

2-2-A- Correlation of different relevant sciences in the problem solving and management of common problems of Medical Microbiology and Immunology.

2-2-B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Medical Microbiology and Immunology

2.2- C- Demonstrating systematic approach in studding common themes or problems relevant to Medical Microbiology and Immunology.

2-2-D- Making alternative decisions in different situations in the field of Medical Microbiology and Immunology.

2.3- Clinical skills

By the end of the program, the graduate should be able to

2-3-A - Provide practical and or laboratory services that can help patient care, solving health problems and better understanding of the normal structure and function.

2-3-B- Demonstrate practical / laboratory skills relevant to Medical Microbiology and Immunology

2-3- C- Write and comment on reports for situations related to the field of Medical Microbiology and Immunology.

2.4- General skills

By the end of the program, the graduate should be able to

- ***Competency-based outcomes for practice-based learning and improvement***

2-4-A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.

2-4-B- Use all information sources and technology to improve his practice.

2-4-C- Demonstrate skills of teaching and evaluating others.

- ***Competency-based objectives for interpersonal and communication Skills***

2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, lab technical staff and other health professionals.

- ***Competency-based objectives for Professionalism***

2-4-E- Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

- ***Competency-based objectives for Systems-based Practice***

2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to effectively use system resources to provide care that is of optimal value.

2-4-G- Demonstrate skills of effective time management.

2-4-H- Demonstrate skills of self and continuous learning.

Annex 3, Methods of teaching/learning

Annex 3, Methods of teaching/learning

	Patient Care	Medical knowledge	Practice-based learning/ Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Didactic (lectures, seminars, tutorial)	X	X		X	X	X
journal club,	X	X	X			
Educational prescription	X	X	X	X	X	X
Present a case (true or simulated) in a grand round	X	X	X	X	X	
Observation and supervision	X		X	X	X	X
conferences		X	X	X		X
Written assignments	X	X	X	X	X	X
Oral assignments	X	X	X	X	X	X

Teaching methods for knowledge

- Didactic (lectures, seminars, tutorial)
- journal club
- Critically appraised topic
- Educational prescription (a structured technique for following up on clinical questions that arise during rounds and other venues).
- Present a case (true or simulated) in a grand round
- Others

Teaching methods for patient care

- Observation and supervision /Completed tasks procedure/case logs
- On-the-job" training without structured teaching is not sufficient for this skill (checklists).
- Simulation is increasingly used as an effective method for skill/ teamwork training.

Teaching methods for other skills

- Written communication (e.g., orders, progress note, transfer note, discharge summary, operative reports, and diagnostic reports).

- Oral communication (e.g., presentations, transfer of care, interactions with patients, families, colleagues, members of the health care team) and/or non verbal skills (e.g., listening, team skills)

- Professionalism, including medical ethics, may be included as a theme throughout the program curriculum that includes both didactic and experiential components (e.g., may be integrated into already existing small group discussions of vignettes or case studies and role plays, computer-based modules) and may be modeled by the faculty in clinical practice and discussed with the resident as issues arise during their clinical practice.

Annex 4, Assessment methods

Annex 4, ILOs evaluation methods for Master Degree students.

Method	Practical skills	K	Intellectual	General skills			
	Patient care	K	I	Practice-based learning/ Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Record review	X	X	X		X	X	X
Checklist	X				X		
Global rating	X	X	X	X	X	X	X
Simulations	X	X	X	X	X	X	
Portfolios	X	X	X	X	X		
Standardized oral examination	X	X	X	X	X		X
Written examination	X	X	X	X			X
Procedure/ case log	X	X					

Annex 4, Glossary of Master Degree doctors assessment methods

- Record Review – Abstraction of information from patient records, such as medications or tests ordered and comparison of findings against accepted patient care standards.

- Chart Stimulated Recall – Uses the MSc doctor's patient records in an oral examination to assess clinical decision-making.

- Mini clinical evaluation: Evaluation of Live/Recorded Performance (single event) – A single resident interaction with a patient is evaluated using a checklist. The encounter may be videotaped for later evaluation.

- Standardized Patients (SP) – Simulated patients are trained to respond in a manner similar to real patients. The standardized patient can be trained to rate MSc doctor's performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MSc doctor's performance.

- Objective Structured Clinical Examination (OSCE) – A series of stations with standardized tasks for the MSc doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MSc doctors.

- Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills.
- Models: are simulations using mannequins or various anatomic structures to assess procedural skills and interpret clinical findings. Both are useful to assess practice performance and provide constructive feedback.
- 360 Global Rating Evaluations – MSc doctors, faculty, nurses, clerks, and other clinical staff evaluate MSc doctors from different perspectives using similar rating forms.

- Portfolios – A portfolio is a set of project reports that are prepared by the MSc doctors to document projects completed during the MSc study years. For each type of project standards of performance are set. Example projects are summarizing the research literature for selecting a treatment option, implementing a quality improvement program,

revising a medical student clerkship elective, and creating a computer program to track patient care and outcomes.

- Examination MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.

- Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.

Annex 5, Program evaluation tools

By whom	Method	Sample
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits questionnaires	#
Senior students	questionnaires	#
Alumni	questionnaires	#

Annex 6, Program Correlations:

مصفوفة توافق المعايير القومية القياسية العامة لبرامج الماجستير مع المعايير الأكاديمية المعتمدة من كلية الطب جامعة أسيوط لدرجة الماجستير في الميكروبيولوجيا الطبية والمناعة

I- General Academic Reference Standards (GARS) versus Program ARS

1- Graduate attributes

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and medical audit in the chosen field of medicine.	1- إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in the related Medical Microbiology and Immunology.	2-تطبيق المنهج التحليلي واستخدامه في مجال التخصص
3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Medical Microbiology and Immunology.	3-تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
4- Dealing with common problems and health promotion using updated information in the field of Medical Microbiology and Immunology.	4-إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
5- Identify and share to solve health problems in Medical Microbiology and Immunology.	5-تحديد المشكلات المهنية و إيجاد حلولا لها
6- Acquire all competencies that enable him to provide safe, scientific, ethical care including update use of new technology in the Medical Microbiology and Immunology field.	6-إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجيةالمناسبة بما يخدم ممارسته المهنية

1- Graduate attributes (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
7- Demonstrate interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community, junior students and the public. - Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.	7–التواصل بفاعلية و القدرة على قيادة فرق العمل
9- Acquire decision making capabilities in different situations related to his field of practice.	9–اتخاذ القرار في سياقات مهنية مختلفة
10- Show responsiveness to the larger context of the related health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.	10– توظيف الموارد المتاحة بما يحقق أعلي استفادة و الحفاظ عليها
11- Be aware of public health and health policy issues and share in system-based improvement of his practice and related health care.	11–إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
12- Show appropriate attitudes and professionalism.	12–التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة
13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in the speciality or one of its subspecialties.	13–تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

2-Academic standards

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.1. A - Established basic, biomedical, clinical, epidemiological and behavioral sciences related to Medical Microbiology and Immunology.	2-1-أ-النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة.
2.1. B- The relation between practice in the speciality and the welfare of society.	2-1-ب-التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة.
2.1. C- Up to date and recent developments in common problems related to the field of Medical Microbiology and Immunology.	2-1-ج-التطورات العلمية في مجال التخصص.
2.1. D- Ethical and medicolegal principles relevant to practice in the Medical Microbiology and Immunology field.	2-1-د-المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.
2.1. E- Quality assurance principle related to the good medical practice in the Medical Microbiology and Immunology.	2-1-هـ- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
2.1. F- Ethical and scientific basics of medical research.	2-1-و- أساسيات وأخلاقيات البحث العلمي

2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.2. A- Correlation of different relevant sciences in the problem solving and management of common problems of Medical Microbiology and Immunology. 2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Medical Microbiology and Immunology.	2-2-أ- تحليل و تقييم المعلومات في مجال التخصص والقياس عليها لحل المشاكل
2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Medical Microbiology and Immunology.	2-2-ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
2.2. A- Correlation of different relevant sciences in the problem solving and management of common problems of Medical Microbiology and Immunology.	2-2-ج- الربط بين المعارف المختلفة لحل المشاكل المهنية
2.2. D- Demonstrating systematic approach in studding common themes or problems relevant to the Medical Microbiology and Immunology field.	2-2-د- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية
2.4. E- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.	2-2هـ- تقييم المخاطر في الممارسات المهنية في مجال التخصص
2.4. F- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal services and risk management.	2-2-و- التخطيط لتطوير الأداء في مجال التخصص

2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.2. G- Making alternative decisions in different situations in the field of Medical Microbiology and Immunology.	2-2-ز- اتخاذ القرارات المهنية في سياقات مهنية متنوعة
2.3.A- Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function. 2.3. B- Demonstrate practical / laboratory skills relevant to Medical Microbiology and Immunology.	2-3-أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص 2-3-ب
C- Write and comment on reports for situations related to the field of Me Microbiology and Immunology.	2-3-ج- كتابة و تقييم التقارير المهنية
2.3.D- Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function. 2.3. B- Demonstrate practical / laboratory skills relevant to Medical Microbiology and Immunology.	2-3-د- تقييم الطرق و الأدوات القائمة في مجال التخصص

2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.4. A- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, lab technical staff and other health professionals.	2-4-أ-التواصل الفعال بأنواعه المختلفة
2.4. B- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management. 2.4. C- Use all information sources and technology to improve his practice.	2-4-ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية **2-4-ج**
2.4. D- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management. 2.4. E-Demonstrate Professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	2-4-د- التقييم الذاتي وتحديد احتياجاته التعلمية الشخصية 2-4-هـ- وضع قواعد ومؤشرات تقييم أداء الآخرين

2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.4. A- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.	2-4-د- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
2.4. F- Demonstrate skills of teaching and evaluating others.	2-4-هـ- وضع قواعد ومؤشرات تقييم أداء الآخرين
2.4. G- Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to effectively use system resources to provide care that is of optimal value.	2-4-و- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
2.4. H- Demonstrate skills of effective time management.	2-4-ز- إدارة الوقت بكفاءة
2.4. I- Demonstrate skills of self and continuous learning.	2-4-ح- التعلم الذاتي و المستمر

II- Comparison between Program ARS and ILOS for master degree in Medical Microbiology and Immunology

(ARS)	(ILOs)
2-1- Knowledge and understanding **2-1-A-** Established basic, biomedical, clinical, epidemiological and behavioral sciences related to Medical Microbiology and Immunology.	***2-1- Knowledge and understanding*** **2-1-A**- Explain the essential facts and principles of relevant basic sciences including, epidemiology of infectious diseases and biostatistics related to Medical Microbiology and Immunology **2-1-B-** Mention essential facts of clinical supportive sciences related To medical Microbiology and Immunology **2-1-C-** Demonstrate sufficient knowledge of the main subjects related to Medical Microbiology and Immunology
2-1-B The relation between practice in the speciality and the welfare of society.	**2-1-H-** State the impact of common problems related to the field of speciality on the society and how good practice can improve these problems.
2-1-C- Up to date and recent developments in common problems to the field of Medical Microbiology Immunology.	**2-1-C-** Demonstrate sufficient knowledge of the main subjects related to Medical Microbiology and Immunology. **2-1-D-** Give the recent and update developments in the most important themes related to Medical Microbiology and Immunology.
2-1-D- Ethical and medicolegal principles relevant to practice in	**2-1-E-** Mention the basic ethical and medicolegal principles that should

the Medical Microbiology and Immunology field.	be applied in practice and are relevant to the field of Medical Microbiology and Immunology.
2-1-E-Quality assurance principles related to the good medical practice in the Medical Microbiology and Immunology field.	**2-1-F-** Mention the basics and standards of quality assurance to ensure good practice in the field of Medical Microbiology and Immunology.
2-1-F- Ethical and scientific basics of medical research.	**2-1-G-** Mention the ethical and scientific principles of medical research methodology.

continuous (ARS)	Continuous (ILOs)
***2-2- Intellectual skills*:**	***2-2- Intellectual skills:***
2-2-A-Correlation of different relevant sciences in the problem solving and management of common problems of Medical Microbiology and Immunology.	**2-2-A-** Correlate the relevant facts of relevant basic and clinically supportive sciences with reasoning, diagnosis and management of common problems of Medical Microbiology and Immunology.
2-2-B-Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Medical Microbiology and Immunology.	**2-2-B-** Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical or practical situations related to Medical Microbiology and Immunology.
2-2-C- Demonstrating systematic approach in studding common themes or problems relevant to the Medical Microbiology and Immunology field.	**2-2-C-** Design and /or present a case or review (through seminars/journal clubs.) in one or more of common themes or problems relevant to the Medical Microbiology and Immunology field.
2-2-D Making alternative decisions in different situations in the field of Medical Microbiology and Immunology.	**2-2-D-** Formulate management plans and alternative decisions in different situations in the field of Medical Microbiology and Immunology.

continuous (ARS)	continuous (ILOs)
2-3- Practical skills:	***2/3/1/Practical skills)***
2-3-A- Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function.	**2-3-1-A-** Demonstrate competently relevant laboratory skills related to Medical Microbiology and Immunology.
	2-3-1-B- Use the up to date technology for the conditions related to Medical Microbiology and Immunology.
	2-3-1-C- Develop plans for performing experiments related to Medical Microbiology and Immunology.
2-3-B- Demonstrate practical/laboratory skills relevant to Medical Microbiology and Immunology.	**2-3-1-D-** Carry out common experiments relat Medical Microbiology and Immunology.
	2-3-1-E- Counsel and educate students, technicians and junior staff, in the lab about conditions related to speciality; including handling of samples, devices, safety and maintenance of laboratory equipments.
	2-3-1-F- Use information technology in some of the situations related to Medical Microbiology and Immunology.
	2-3-1-G- Share in providing health care services aimed supporting patient care ,solving health problems and better understanding of the normal structure and function.
2-3-C- Write and comment on reports for situations related to the field of Medical Microbiology and Immunology.	**2-3-1-H** Write competently all forms of professional reports related to Medical Microbiology and Immunology (lab reports, experiments reports,).

continuous **(ARS)**	**Continuous** **(ILOs)**
2-4- General skills **2-4-A-** Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management	***2/3/2 General skills*** **2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks). **2-3-2-B-** Appraises evidence from scientific studies. **2-3-2-C-** Conduct epidemiological Studies and surveys.
2-4-B- Use all information sources and technology to improve his practice.	**2-3-2-C-** Conduct epidemiological Studies and surveys. **2-3-2-D**-Performdata management including data entry and analysis and Using information technology to manage information, access on-line medical information; and support their own education.
2-4-C- Demonstrate skills of teaching and evaluating others.	**2-3-2-E-** Facilitate learning of students, lab technical staff and other health care professionals including their evaluation and assessment.
2-4-D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, lab technical staff and other health professionals.	**2-3-2-F-** Maintain therapeutic and ethically sound relationship with patients, their families, lab technical staff and other health professionals. **2-3-2-G-** Elicit information using effective nonverbal, explanatory, questioning, and writing skills. **2-3-2-H-** Provide information using effective nonverbal, explanatory, questioning, and writing skills.

	2-3-2-I- Work effectively with others as a member of a team or other professional group.
2-4-E-Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	**2-3-2-J-** Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society. **2-3-2-K**- Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices. **2-3-2-L**-Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.
2-4-F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to effectively use system resources to provide care that is of optimal value.	**2-3-2-M**-Work effectively in relevant academic and health care delivery settings and systems including good administrative and time management. **2-3-2-N-** Adopt cost-effective practice and resource allocation that does not compromise quality of services. **2-3-2-O**- Assist patients in dealing with system complexities.
2-4-G- Demonstrate skills of effective time management.	**2-3-2-M**-Work effectively in relevant academic or health care systems including and time management. good administrative
2-4-H- Demonstrate skills of self and continuous learning.	**2-3-2-A-** Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).

II-Program matrix
Knowledge and Understanding

Course	Program covered ILOs							
	2/1/A	2/1/B	2/1/C	2/1/D	2/1/E	2/1/F	2/1/G	2/1/H
Course 1: Public Health (Epidemiology & Medical statistics)	√	√	√	√	√	√	√	
Course 2: Basics of infection control & immunology	√	√	√	√	√	√	√	√
Course 3: Microbiology & Immunology (advanced)	√	√	√	√	√	√	√	√

Intellectual Outcomes

Course	Program covered ILOs			
	2/1/A	2/1/B	2/1/C	2/1/D
Course 1: Public Health (Epidemiology & Medical statistics)	√	√	√	
Course 2: Basics of infection control & immunology	√	√	√	√
Course 3: Microbiology & Immunology (advanced)	√	√	√	√

Practical Skills

Course	Program covered ILOs							
	2/3/1/ A	2/3/1/ B	2/3/1/ C	2/3/1/ D	2/3/1/ E	2/3/1/ F	2/3/1/ G	2/3/1/ H
Course 1: Public Health (Epidemiology & Medical statistics)	√			√		√		√
Course 2: Basics of infection control & immunology	√	√	√	√	√	√	√	√
Course 3: Microbiology & Immunology (advanced)	√	√	√	√	√	√	√	√

General Skills

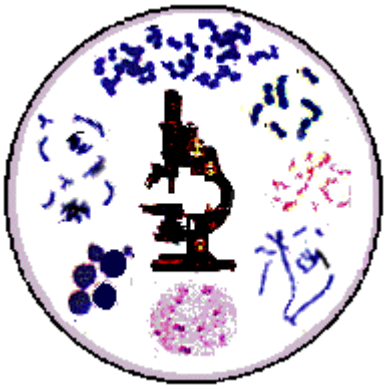
Course	Program covered ILOs							
	2/3/2/ A	2/3/2/ B	2/3/2/ C	2/3/2/ D	2/3/2/ E	2/3/2/ F	2/3/2/ G	2/3/2 /H
Course 1: Public Health (Epidemiology & Medical statistics)	√	√	√	√	√	√	√	√
Course 2: Basics of infection control & immunology	√	√	√	√	√	√	√	√
Course 3: Microbiology & Immunology (advanced)	√	√	√	√	√	√	√	√

General Skills

Course	Program covered ILOs						
	2/3/2/I	2/3/2/ J	2/3/2/ K	2/3/2/ L	2/3/2/ M	2/3/2/ N	2/3/2/ O
Course 1: Public Health (Epidemiology & Medical statistics)	√	√	√	√	√	√	√
Course 2: Basics of infection control & immunology	√	√	√	√	√	√	√
Course 3: Microbiology & Immunology (advanced)	√	√	√	√	√	√	√

Annex 7, Additional information:

Department information:



Our Mission:

The mission of the Department of Microbiology and Immunology is to conduct the best possible research and provide the most rigorous and inspiring training in the areas of microbiology, immunology, host-pathogen interaction and related fields. Through such activities, our goal is to improve human and animal health. We hope to present an overview of our research and training activities and to inspire like-minded individuals to join us in our quest.

Research

The traditional focus of the Department of Microbiology and Immunology has been on how microbes survive and cause disease in an animal or human host and how that host's immune system discriminates between self, friend (commensal microbes) and pathogenic microbes. In recent years, the Department has expanded this scope to also include related disciplines such as genetics, biotechnology, and Infection control through inclusion of the infection control lab.

On the side of the microorganism, we study the growth and pathogenesis of viruses, bacteria, and fungi asking questions such as how do these organisms penetrate and survive in their chosen environment? How do they deal with the host's potent immune response? What distinguishes “good” microbes from “bad” and how do the two interact? What is responsible for latency/persistence and reactivation of infection?

On the side of the host, we are asking questions such as how are self-antigens distinguished from non-self? How are antigens processed and presented to effector cells? What cascades follows antigen presentation? What roles do the various effector cells play in the host's immune response to different diseases? How does tolerance arise during development, how does it break down in autoimmunity and how can we interfere with these processes?

Using a variety of microbial and host systems, we are also addressing fundamental questions of cell development and

gene regulation. For example, how do cancer cells lose their self-control? Gene expression, of course, is central to much of biology.

- The Department underwent several expansions by inclusion of the PCR lab., Virology lab and the infection control lab. This is a group of faculty with interests that take us beyond our traditional focus in host and pathogen into even more diverse but complementary areas of biomedical research.
- The Department of Microbiology and Immunology is a community of over 30 individuals, all of whom share a common passion for research and learning. The Department was founded almost 50 years ago and has gone by a number of names since that time, each reflecting a particular stage in the evolution of medicine and the life sciences. Our current name is Medical Microbiology and immunology Department.

Staff members:

Professors:
Prof. Shaban Hashim Ahmed
Prof. Ismail Sedeek Mohamed
Prof. Amany Gamal Thabet
Prof. Ahmed Sadik Ahamed
Prof. Mohamed Aly Mohamed Al-Feky
Prof. Khaled Hassanein
Prof. Enas Abdel-Megeed Mohamed Daef
Prof. Ehsan Abdel-Sabour
Prof. Mona Amin Hassan
Dr. Mohamed Saad Badary
Dr. Salwa Said Ahmed
Dr. Noha Adbel-Haleem Afifi
Dr. Shereen Ahmed Abdel-Rahman
Dr. Nahla Mohamed Al-Sherbeny
Dr. Michael Nazmy Agban

Assistant Professors:
Dr. Shreen Gamal Aldeen Al-Gendy
Dr. Wegdan Abdel-Hameed Mohamed
Dr. Intsar Hamid Ahmed
Dr. Hanaa Nafady
Dr. Mona Salam Embarak
Dr. Magi Abdallah Ibraheem
Dr. Omnia Hassan Bakr
Dr. Mohamed El-Mokhtar
Dr. Amany Mohamed Adawy
Dr. Mona Hussein Mohamed
Dr. Amal Ahmed El-Khawaga
Dr. Helal Fouad

Lecturers:

Dr. Alyaa Ghandour
Dr. Shereen Mohamed
Dr. Shreen Saber
Dr. Raoheia Fathey
Dr. Asmaa Salah Shaltoot
Dr. Ibrahim SAIED
Dr. Hebatallah Ismaeil
Dr. Fatma Sayed
Dr. Dina Oyoon

Opportunities within the department:

Education

The teaching mission of the Department is to provide the best possible training in the areas of microbiology, immunology and related fields. Our approach is holistic in that we are constantly considering the entirety of the system we study, be it the pathogenesis of an autoimmune disease (perhaps microbially triggered) or a pathogen-produced virulence protein that reprograms gene expression in an infected cell. We know that all of us are both student and teacher, be we first year undergraduates or senior faculty. Teaching and learning are our constant companions in the classroom, the lab, the ward or the office.

We offer a large number of formal courses as well as practical training and mentoring in the lab and clinic. We are committed to undergraduate and postgraduate training.

Undergraduate Studies

The Department of Microbiology and Immunology offers many opportunities for undergraduate students to learn about our discipline. We offer many courses that specifically cater to undergraduates ranging from freshman seminars through to advanced classes for seniors. Undergraduates also are encouraged to obtain research experience in the labs of department faculty. Students interested in doing this should contact individuals whose work falls within their specific area of interest.

Graduate Studies

Courses typically taken are at the advanced graduate level in microbiology, immunology, genetics besides cell and molecular biology. All students are required to obtain some teaching experience, usually by serving as teaching assistant. The normal time for completion of the MD. is about 2 to3 years, and for Ph.D is about 4 years.

Seminars

The Department of Microbiology and Immunology holds a monthly Research Seminar Series which present current research in microbiology

Events and Achievments:

Completed Research Support

- R21AI067868 Shata (P.I.)8/15/06 – 7/31/08

University of Cincinnati

Towards Understanding the Morbidity of HEV

This research project is a collaborative effort among American and Egyptian scientists to study the immunology and virology of hepatitis E virus.

- HC &HB Project
  Ahlam(P.I .) 1/1/1998-1/1/1999

Cement Company

Screening for Hepatitis B and Hepatitis C viruses among workers and their families in Cement Company in Assiut.

- HCV in Egypt
  (Strickland)P.I 1/11996-1/1/2000

Vaccination against Poliomyelitis Farouk Hassanen (P.I.) 1/5/1993-1/12/1994

- **USAID Schistosomiasis Rsearch project** 06-03-61

  1-6-1992 to 28-2-1997,

- **Idiotypic Regulations Of Immune Response**
  Shata (P.I.) 1/1/1991-1/2/1995

To Schistosomiasis Hematobium (Grant No 3/1/34)
Ultrasound and Immunological Assesment of Praziquntel Ahmad Medhat (P.I) 1/7/1991-1/6/1996
Therapy of Patients infected with Schistosoma hematobium

Contact Us

General mail should be addressed to:

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Faculty of Medicine

Assiut University

Egypt

Faculty are most easily found on our **Faculty Research page** http://afm.edu.eg/

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Department quality control insurance for completing the program:

(End of the program specification)