كليسة البطب

**Faculty of Medicine** 





**Quality Assurance Unit** 

Master (MSC) Degree Program and Courses Specifications for Clinical Pathology

(According to currently applied Credit point bylaws)

Clinical pathology department Faculty of medicine Aswan University

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#### Master degree of Clinical Pathology

#### A. Basic Information

- Program Title: Master degree of Clinical Pathology Nature
- Nature of the program: Single.
  - Responsible Department: Clinical Pathology Department-Faculty of Medicine- Assiut University.
- Program Academic Director (Head of the Department):

Prof Dr Azza Mahmoud Ezz EL Din

- Coordinator (s):
  - Principle coordinator: Prof. Dr Lubna Tag Assistant coordinator(s)

Staff members of Clinical Chemistry Unit Staff members of Hematology unit Staff members of immunology unit Staff members of microbiology unit

#### Internal evaluators:

Prof.Dr/ Nevin Abd Elmoneim

Prof. Dr/ madeha younis

Prof.DR/ Wafaa Tohamy

Prof. Dr/Zenb Abd All

**Prof.Dr/Soheir Mohamed** 

Prof.Dr/ Azza Mahmoud Ezz EL Din

Prof.Dr/ Heba Rashed

Prof.Dr/Mohamed Zakaria

- **External evaluator** 
  - Prof.Dr./Prof.Dr./Ekbal Hashem
- Prof.Dr./ Ahmed abdel-samie
- by the Faculty of Medicine Council of

- Assiut University: 23/9/2014. Date of Approval Date of most recent approval of program specification by the Faculty of Medicine Council of Assiut University: 22/10/2017
- Total number of courses: 5 courses
  - First part: 4 courses
  - Second part: 1 course

#### **B.** Professional Information

#### 1- Program aims

- I/1. To enable candidates to keep with international standards of clinical Pathology by teaching high level of laboratory skills, in addition to update medical knowledge as well as laboratory experience and competence in the area of clinical chemistry, hematology, immunology, microbiology, blood banking , emergency lab and internal medicine and enabling the candidates of making appropriate referrals to a sub-specialist
- **1/2. To help candidates** develop an understanding of the appropriate use and interpretation of patient care tests in four sub-speciality areas of clinical pathology (clinical chemistry, hematology, immunology, and microbiology).
- **1/3. Become familiar** with the consultation role of the clinical pathologist in patient care and research.
- **%. To provide candidates** with a glimpse of the current state of the art technology and equipment of laboratory testing in clinical chemistry, hematology, immunology, and microbiology.
- **1/5. To introduce candidates** to the basics of scientific medical research.
- 1/6. To provide the candidates with master degree:
  - Enabling them to start professional careers as specialists in Egypt.
  - Making them recognized as specialists abroad.
  - Enabling them to pursue higher studies and subspecialties.
- Enabling them to understand and get the best of published scientific

research and do their own.

- Updating their knowledge and self learning.
- Fellow the ethical standard of medical and clinical practice of patient

care and research work according to our local Ethical Committee.

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

#### 2/1Knowledge and understanding:

- A. Explain the essential facts and principles of relevant basic sciences including, clinical parasitology, principal of general and clinical microbiology, principal of general and clinical immunology and internal medicine related to clinical pathology.
- B. Mention essential facts\_of clinically supportive sciences including clinical parasitology, principal of general and clinical microbiology, principal of general and clinical immunology and internal medicine related to clinical pathology.
- C. Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment the common diseases and situations related to clinical pathology.
- D. Give recent and update developments in the pathogenesis, early diagnosis of common diseases and situations related to clinical pathology and prevention of related complication.
- E. Mention the basic ethical and medico legal principles relevant to the clinical pathology.
- F. Mention the basic ethical and medicolegal principles relevant to the clinical pathology.
- G. Mention the ethical and scientific principles of medical research.
- H. State the impact of common health problems in the field of clinical pathology on the society.

#### 2/2 Intellectual outcomes

- A. Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis of common diseases of the clinical pathology.
- B. Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to clinical pathology.
- C. Design and present case report for common problem related to clinical pathology.
- D. Formulate management plans (diagnosis and follow up of treatment) and alternative decisions in different situations in the field of the clinical pathology.

#### 2/3 Skills

#### 2/3/1 Practical skills ( Patient Care)

- A. Obtain proper history and evaluate clinical data and communicate effectively with patients in caring and respectful behaviors.
- B. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to clinical pathology.
- C. Carry out patient management plans (diagnosis and follow up of treatment) for common conditions related to clinical pathology.
- D. Use information technology to support patient care decisions and patient education in common clinical situations related to clinical pathology

- E. Perform competently non invasive and invasive procedures considered essential for clinical pathology.
- F. Provide health care services aimed at preventing health problems related to clinical pathology.
- G. Provide patient-focused care in common conditions related to clinical pathology, while working with health care professionals, including those from other disciplines
- I. Write all forms of professional reports related to the Clinical pathology (lab reports, experiments reports,).

#### 2/3/2 General skills

#### **Including:**

- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

### **Practice-Based Learning and Improvement**

- A. Perform practice-based improvement activities using a systematic methodology (share in audits and use logbooks).
- B. Appraises evidence from scientific studies.
- C. Conduct epidemiological Studies and surveys.
- D. Perform data management including data entry and analysis.
- E. Facilitate learning of students and other health care professionals.

#### **Interpersonal and Communication Skills**

- F. Maintain therapeutic and ethically sound relationship with patients.
- 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.

#### **Professionalism**

- J. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients 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 patients' culture, age, gender, and disabilities

#### **Systems-Based Practice**

- M. Work effectively in relevant health care delivery settings and systems.
- N. Practice cost-effective health care and resource allocation that does not compromise quality of care.
- O. Assist patients in dealing with system complexities.

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

# Academic standards for master degree in *Clinical*pathology

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 17-6-2009. These standards were revised and approved without changes by the Faculty Council on 23-9-2014.

#### 4- Program External References (Benchmarks)

- 1. ACGME (Accreditation Council for Graduate Medical education).
- 2. Residency Program of clinical Pathology, Emory University School of Medicine, Emory University Hospital, Atlanta, USA.

http://pathology.emory.edu/Training ClinicalPathology.html

Comparison between program and external reference			
Item		Emory University	
	Master	School of Medicine	
	Degree for	Emory University	
	Clinical	Hospital, Atlanta, USA	
	Pathology	Residency Program Of clinical pathology	
Goals	Matched	Matched	
ILOS	Matched	Matched	
Duration	2-4 years	3 years	
Requirement	Different	different	
<b>Program structure</b>	Different	different	

#### 5. Program Structure and Contents

#### A. Duration of program: 3 – 5 years

#### **B.** Structure of the program:

Total number of credits points: 180 (20 out of them for thesis)

Didactic# 40 (22.2 %), practical 120 (66.7%), thesis 20 (11.1%), total 180

First part

Didactic 14 (35 %), practical 24 (60 %), elective course 2 CP (5%), total 40

Second part

Didactic 24 ( 20%), practical 96 (80 %), total 120 # Didactic (lectures, seminars, tutorial)

#### According the currently applied bylaws:

Total courses 160 CP

Compulsory courses: 98.9%

Elective course: 2 credit point: 1.1%

	Points	% from total
<ul><li>Basic science courses</li></ul>	24	13.3%
Humanity and social courses	2	1.1%
<ul><li>Speciality courses</li></ul>	134	74.5%
<ul><li>Others ( Computer)</li></ul>	-	-
<ul><li>Field training</li></ul>	120	66.7%
Thesis	20	11.1%

#### C. Program Time Table

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

Part 1: (36.6% from final marks)

Program-related basic science courses and ILOs + elective courses

Students are allowed to sit the exams of these courses after at least 12 months from applying to the MSc degree.

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

#### Thesis

For the MSc 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 (3 years)(64.4% from final marks)

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 1900 marks.

700 marks for first part 1200 for second part Written exam 40% - 70%.

Clinical /practical and oral exams 30% - 60%.

# D. Curriculum Structure: (Courses): Courses): as mentioned above

Curriculum Structure: (Courses / units/ rotations): Year 1

The first year of the fellowship is primarily for basic science related medical knowledge (studied in speciality courses over 6-18 months in collaboration with departments of parasitology and internal medicine of Assiut Faculty of Medicine, principal of general and clinical microbiology and principal of general

and clinical immunology in clinical pathology department Assiut Faculty of Medicine and a practical year during which the fellows gain experience in microbiology lab and immunology lab, blood bank, emergency lab, develop proficiency in the performance and appropriate utilization of various laboratory techniques, and develop proficiency in the utilization and interpretation of laboratory testing. Throughout the year, emphasis is placed on developing: 1) an understanding of basic clinical parasitology; 2) an understanding of some subject in internal medicine and the ability to efficiently formulate laboratory assessments; 3) an understanding the , principal of general and clinical microbiology and principal of general and clinical immunology and the ability to critically analyze the relevant medical literature; and 4) skills in communicating with nursing and medical staff as well as house staff.

The first year fellow spends the year rotating among different services: 1) Blood bank at Assiut University Hospital; 2) Emergency lab at Assiut University Hospital; 3) chemistry lab at Assiut University Hospital; 4) hematology lab at Assiut University Hospital; 5) Immunology lab at Assiut University Hospital; 6) Microbiology lab at Assiut University Hospital. These rotations are briefly described below.

#### Years 2 and 3

Although the primary focus of the second and third year is the development of skills and experience in research (see below), senior fellows continue to participate in practical activities and certain procedures. First, they maintain their longitudinal laboratory experience throughout these years. Senior fellows will also actively participate in the regular weekly scientific seminars and collaborate with those fellows in their first year. In addition, fellows rotate through the different laboratory services approximately two months on laboratory rotations (blood bank, chemistry lab, emergency lab, hematology lab, microbiology and Immunology lab, and outpatient lab). This rotation complements the previous inpatient and outpatient

experiences. To identify a research area in which the subsequent two years will be focused. Together, the trainee and supervisors develop a project for investigation that is of interest to the trainee and within the expertise of the faculty member; in certain instances, joint mentorship provided by two faculty members within the Division, or by one divisional faculty member and a collaborator from another unit, is appropriate. By the beginning of the second year, the fellow presents a conference in which he/she synthesizes existing knowledge, presents the problem for investigation, and describes the proposed plan of investigation. The faculty members and fellows in attendance provide feedback to the fellow and supervisors about the proposed project; this process of peer review provides a useful experience for the fellow and often strengthens the experimental approach.

During the second and third years, the trainee carries out the proposed work in the clinical research facilities of the faculty mentor(s). The trainee also benefits from interactions with other trainees, technicians, and collaborating investigators. The trainee also participates in laboratory meetings and journal clubs specific to individual research groups. Presenting research findings at regional and national meetings and submitting work for publication are both important aspects of the investigative endeavor. The trainee will receive guidance and specific assistance in learning to prepare data for oral and written presentation, to prepare graphics, and to organize talks and prepare slides. Throughout the two-year research training period, it is anticipated that the fellow will assume increasing intellectual responsibility and technical independence.

#### **Research Training Pathways**

Selection of a research project and supervisors is subject to the approval of the Clinical pathology Department council approval and vice-Dean of post graduate studies of the faculty as officially regulated. Fellows may elect either essay or clinically

or epidemiologically -based research training pathways. For all research fellows, a research advisory committee will be selected by the fellow based on the approved regulatory rules of the faculty council. This committee will monitor the progress of research fellows and provide advice regarding research training and career development.

# courses of the program:

courses	Course			
	Code	Lectures	training	
First Part				
Basic science courses (8CP)  1) Course1:Clinical Parasitology	CCP208	1	1	2
2) Course 2: Principal of General and Clinical Microbiology	CCP231A	3.5	1.5	5
3) Course 3: Principal of General and Clinical Immunology	CCP231B	3.5	1.5	5
4) Course 4: Internal Medicine	CCP218	2	1	2
General clinical compulsory courses (6 points)	<b>ory</b> 6			
Elective courses*		2CP		
- Elective course				
Clinical training and scientific activities:				
A. Clinical training in General clinical compulsory courses (clinical parasitology+ Internal medicine(4 CP)			4	
B. Clinical training and scientific activities in Speciality course (20 CP)			20	
Thesis	20 CP			
Total of the first part				

Second Part	Speciality courses 24 CP Speciality Clinical Work (log Book) 96 CP			
Speciality Courses(24 CP) Course 5; Clinical pathology	24			
Training and practical activities in clinical pathology (96 CP)			96	
Total of the second part		24	96	120
Total of the degree	180			

#### **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
- o Quality assurance of medical education
- o 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.;.

<sup>\*</sup> Elective courses can be taken during either the  $\mathbf{1}^{st}$  or  $\mathbf{2}^{nd}$  parts.

#### 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

#### 7-Admission requirements

- Admission Requirements (prerequisites) if any :
  - I. General Requirements:
    - a. MBBCh Degree form any Egyptian Faculties of Medicine
    - 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:
    - Candidates graduated from Egyptian Universities
    - b. Candidate should be fluent in English (Study Language).
    - c. External Candidate should be present in our department at the 2<sup>nd</sup> year of registration of Master degree.
    - d. Should attend the scientific and clinical activities of our department for at least 80%.

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#### **VACATIONS AND STUDY LEAVE**

The current departmental policy is to give working residents 1-2 week leave prior to first/ second part exams according to departmental council.

#### **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.
- **Lesson** 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:	K & I
Structured essay questions	
Objective questions:	
MCQ	
Problem solving	
Clinical:	K ,I, P &G skills
Long/short cases	
OSCE	
Structured oral	K ,I &G skills
Logbook assessment	All
Research assignment	I &G skills

# Weighting of assessments:

Courses		Degrees			
	Course	Written	De	egree	Total
	code	Exam	Oral	Practical	
			Exam	/ Clinical	
			*	Exam	
		First part			
Basic academic C	ourses:				
Clinical	CCP208	50	20	30	100
Parasiytology					
Principal of	CCP231A	125	50	75	250
General and					
Clinical					
Microbiology					
Principal of	CCP231B	125	50	75	250
General and					
Clinical					
Immunology					
General clinical					
courses					
Internal	CCP218	65	35		100
Medicine					
		365	155	180	700
	9	Second Par	t		
<b>Speciality Course</b>	s:				
Clinical	CCP231C	500	220	480	1200
Pathology					
<b>Elective course</b>					

<sup>\* 25%</sup> of the oral exam for assessment of logbook

## **4** Examination system:

#### First part: after 18 months

- -Written exam one paper 2 hours in Clinical Parasitology + oral & Practical exam.
- Written exam one paper 3 hours in Principal of General and Clinical Microbiology + Oral & Practical exam.
- Written exam one paper 3 hours in Principal of General and Clinical Immunology + Oral & Practical exam.
- Written exam one paper 2 hours in Principal of Internal Medicine + Oral exam.

#### > Second part:

Written exam two papers 3 hours in Clinical chemistry + oral & Practical exam.

Written exam two papers 3 hours in Hematology + oral & Practical exam.

Written exam one paper 2 hours in Immunology and clinical microbiology + oral exam.

#### > 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	
External Evaluator	Reports	#
(s):According to	Field visits	
department council		
External Examiner (s):		
According to		
department council		
Stakeholders	Reports	#
	Field visits	
	Questionnaires	
Senior students	Questionnaires	#
Alumni	Questionnaires	#

#Annex 5 contains evaluation templates and reports (Joined in the departmental folder).

## 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
<ul><li>Program Principle</li></ul>	Prof. Dr Lubna Tag		
Coordinator:			
Head of the Responsible	Prof Dr Azza		
Department (Program	Mahmoud Ezz EL Din		
Academic Director):			

# Annex 1, Specifications for Courses / Modules

#### Annex 1: specifications for courses/

#### **Course 1 Clinical Parasitology**

- Name of department: Clinical Pathology
  - Faculty of medicine
  - Assiut University
  - **2016/2017**

#### 1. Course data

- Course Title: Clinical parasitology
- Course code: CCP208
- Speciality : Clinical Pathology
- Number of points: Credit points Didactic 2 credit, (50%) practical 2 credit. (50%).total 4 credit points
- Department (s) delivering the course: Department of parasitology in conjunction with Clinical pathology.
- Coordinator (s): Staff members of parasitology Department in conjunction with Clinical Pathology Department as annually approved by both departments councils
- Date last reviewed: 9/2017
- General requirements (prerequisites) if any: None
- Requirements from the students to achieve course ILOs are clarified in the joining log book.

# 2. Course Aims

2.1 The student should acquire the detailed principals of clinical Parasitology necessary for clinical pathology in clinical reasoning and diagnosis.

## 3. Course intended learning outcomes (ILOs):

## A- Knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Describe detailed Principles of Clinical Parasitology:(Life cycle, pathogenesis and laboratory diagnosis of; *-Helminthesis: -Class Trematoda	-Lectures -Laboratory work	-Written, oral and practical examination - Log book

Toxoplasma	
<ul> <li>Cryptospordium</li> </ul>	
Balantidium Coli	
Babesia	

# **B-** Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of clinical parasitology with clinical reasoning and diagnosis of common diseases related to clinical pathology.	Didactic (lectures, seminars, tutorial)	-Written, and oral examination

# C- Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Identify common parasites by examining eggs and larvae under the microscope.	Laboratory work	- Practical exam. -Logbook
B-Use information technology to support decisions related to clinical Parasitology of clinical pathology.		0

# D- <u>General Skills</u> Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform data management including data entry and analysis.	-Observation and supervision -Written and oral	Log book
	communication	

# **Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
<u>B</u> . Elicit information using effective nonverbal, explanatory, questioning, and writing skills.	-Observation and supervision -Written and oral communication	Log book
C. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
D. Write a report in common condition mentioned in A.A		

# Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Demonstrate respect, compassion, and integrity;	Observation	Logbook
a responsiveness to the needs of patients and	-Senior staff	
society	experience	
F. <b>Demonstrate a commitment</b> to ethical principles		
including provision or withholding of clinical care,		
confidentiality of patient information, informed		
consent, business practices		

# **Systems-Based Practice**

ILOs	Methods of teaching/ learning	Methods of Evaluation
G. Work effectively in relevant health care delivery settings and systems.	Observation -Senior staff experience	Logbook

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

**Time Schedule: First Part** 

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skills	General Skills
Describe (Life cycle, pathogenesis and laboratory diagnosis of	A	A	A,B	A-D
*-Helminthesis -Class Trematoda Liver Flukes Intestinal Flukes Blood Flukes Lung Flukes	A	A	A,B	A-D
<ul> <li>Class Cestoda</li> <li>Taenia</li> <li>Echinococcus</li> <li>Hymenolepis</li> <li>Diphyllobothrium</li> <li>latum</li> </ul>	A	A	A,B	A-D
<ul><li>Class Nematoda</li><li>Tissue</li><li>Intestinal</li></ul>	A	A	A,B	A-G

*-Protozoa				
<ul> <li>Entamoeba</li> </ul>	A	A	A,B	A-D
<ul> <li>Giardia</li> </ul>				
<ul> <li>Trichomonas</li> </ul>				
<ul> <li>Trypanosoma</li> </ul>				
<ul> <li>Leishmania</li> </ul>				
<ul> <li>Plasmodium</li> </ul>				
<ul> <li>Toxoplasma</li> </ul>				
<ul> <li>Cryptospordium</li> </ul>				
<ul> <li>Balantidium Coli</li> </ul>				
<ul> <li>Babesia</li> </ul>				

#### **5. Course Methods of teaching/learning:**

- 1 Didactic (lectures, seminars, tutorial)
- 2 Laboratory work
- 3 Observation and supervision
- 4 Written & oral communication
- 5 Senior staff experience

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

- 1. Extra Didactic (lectures, seminars, tutorial) according to their needs
- 2. Extra Laboratory work according to their needs

#### 7. Course assessment methods:

i. Assessment tools: 1- Written, oral and practical examination. 2-Log book.

ii. Time schedule: At the end of the first part

iii. Marks: 60% of the first part (100 MARK)

#### 8. List of references

i. Lectures notes

Course notes

Staff members print out of lectures and/or CD copies

#### ii. Essential books

#### **Parasitology notes of department**

#### iii. Recommended books

• Medical Diagnostic Parasitology By Lynne Shore Garcia

# iv. Periodicals, Web sites, ... etc

- Journal of Parasitology,
- Journal of Helminthology

#### v. Others

None

# 9. Signatures

Course Coordinator:	Head of the Department:
Prof.	Prof.
Date:	Date:

## **Course 2 Principal of General and Clinical Microbiology**

- Name of department: Clinical Pathology
  - Faculty of medicine
  - Assiut University
  - **2016-2017**

#### 1. Course data

- ♣ Course Title: Principal of General and Clinical Microbiology Course code: CCP2331A
- Speciality : Clinical Pathology
- Number of points: Credit points Didactic 2.5 credit (50%) practical 2.5 credit.(50%).total 5 credit points
- Department (s) delivering the course: Department of Clinical pathology- Faculty of Medicine-Assiut University.
  - Coordinator (s): Staff members of Clinical Pathology Department Microbiology Unit.
  - Course coordinator: Prof.Heba Gamal Rashed
  - Assistant coordinator (s) Dr. Mohamed Zakeria Dr. Asmaa Omar
- ♣ Date last reviewed: 9/2017
- **♣** General requirements (prerequisites) if any : None
- Requirements from the students to achieve course ILOs are clarified in the joining log book.

#### 2. Course Aims

- 2/1- To enable candidates to keep with international standards of General and Clinical Microbiology by teaching high level of laboratory skills, in addition to update medical knowledge as well as laboratory experience and competence in the area of clinical microbiology.
- 2/2- To help candidates develop an understanding of the appropriate use and interpretation of patient care tests in four sub-speciality areas of clinical pathology (clinical microbiology).
- 2/3- To become familiar with the consultation role of the clinical microbiology in patient care and research.
- 2/4 -To provide candidates with a glimpse of the current state of the art technology and equipment of laboratory testing in clinical microbiology.
- 2/5 -To introduce candidates to the basics of scientific medical research.

#### 3. Course intended learning outcomes (ILOs):

#### **A-Knowledge and understanding**

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
A. Describe detailed Principles of Clinical General	-Lectures	-Written,
microbiology	-Laboratory	oral and
a- Diagnostic techniques in microbiology & Sterilization	work	practical
b- Collection of samples & Transportation of samples		examination
c- Processing of samples& Rejection of samples		- Log book
d- Antibiotic groups & drug resistant		30
e- Gram positive cocci and bacilli		
f- Gram negative cocci, bacilli and coccobacilli		
g- Anaerobic bacteria		
h- Mycobacteria		
i- Fastidious organisms		
j- Spirochaetes		
Medical mycology:		
a- Basic mycology		
b- Superficial and cutaneous Mycosis		
c- Subcutaneous mycosis		

d- Systemic mycosis	
B. Describe the etiology, clinical picture, and	
diagnosis of the following diseases and clinical	
conditions associated with:	
- Gram positive cocci .	
-Gram negative cocci	
-Gram positive rods	
-Gram negative rods	
-spirochetes	
-Poorly gram staining organisms	
-Important fungal infections	
- Viral infection	
C. State update and evidence based Knowledge of	
conditioned mentioned in A&B.	
D. Memorize the facts and principles of the	
relevant basic and clinically supportive sciences	
related to I microbiology	
E. Mention the basic ethical and medicolegal principles	
revenant to the microbiology.	
F. Mention the basics of quality assurance to ensure good	
clinical care in his field	
G. Mention the ethical and scientific principles of medical research	
rescuren	
H. State the impact of common health problems in the	
field of speciality on the society. Field of speciality on the	
society.	

# **B-** <u>Intellectual outcomes</u>

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. A. Correlates the facts of basic bacteriology with clinical reasoning and diagnosis of common diseases related to <b>microbiology.</b>	Didactic (lectures, seminars,	-Written, and oral examination

	tutorial)	
<b>B. Demonstrate</b> an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Microbiology		
C. <b>Design and present</b> cases , seminars in common problem in Microbiology.		
D-Formulate management plans and alternative decisions in different situations in the field of the Microbiology.		

# **C-Practical skills**

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
A. Demonstrate an investigatory and analytic thinking approach to the following conditions: related to microbiology mentioned in AA,AB	Clinical round with senior staff Observation Postgraduate teaching Hand on workshops	Procedure presentation - Log book - Chick list
B-Use information technology to support decisions related to clinical Parasitology of clinical pathology.  B. Recommend the following non invasive diagnostic procedures;  *.Sampling and Specimens collection:  Blood, Urine, Pus, Sputum, Stool and biological fluid Techniques  - Precautions  - Containers  *- Transportation and Processing of Specimens:  Blood, Urine, Pus, Sputum, Stool and biological fluids	•	

*-Staining procedures:	
-Gram stain	
-Ziehl-Neelsen stain	
- Fluorescent stains	
*-Media preparation	
-Nutrient	
-Blood	
-Chocolate	
-MacConkey	
-Manitol- salt	
-Eosin Methylene Blue	
-CLED	
*- culture of different specimens	
-Blood	
- CSF	
-Wound	
- Urine	
-Sputum	
-Stool	
- Biological fluid	
*-Isolation and identification of aerobic organisms	
*- Culture of anaerobe	
-Techniques	
-Precautions	
- Container	
*- Antibiogram	
*-Tuberculosis:	
-Direct smear microscopy	
-Z-N preparation	
-Culture on LJ	
-Identification of strains	
-Interpretation	
-Drug susceptibility	
-New methods: PCR	

-Advanced Techniques :	
-PCR	
-PCR- RFLP	
*- Automation in Microbiology	
C. Interpret the following non invasive diagnostic procedures mentioned in C.B	
D. Perform the following non invasive/invasive	
diagnostic procedures mentioned in C.B	
E. Carry out patient management plans for common	
conditions related to microbiology.	
F. Use information technology to support patient care	
decisions and patient education in common clinical	
situations related to microbiology	
G.Provide health care services aimed at preventing	
health problems infectious diseases related to	
microbiology	
H. Provide patient-focused care in common conditions	
related to clinical microbiology, while working with	
health care professionals, including those from other	
disciplines	
I. Write competently all forms of reports related to	
microbiology, (lab reports).	

## <u>D-General Skills</u> 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)	-Case log -Observation and supervision -Written & oral communication	Procedure/case presentation -Log book and Portfolio
B. Appraises evidence from scientific studies(journal club)	-Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.  D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	Clinical rounds Senior staff experience	

## **Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain diagnostic and ethically sound relationship with patients.	Simulations Clinical round Seminars Lectures Case presentation Hand on workshops	Global rating Procedure/case presentation Log book Portfolios Chick list and
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 Microbiology	Practical round Seminars	
K. Write a report in all investigations mentioned in C.B.	Senior staff experience	Chick list
L. Council patients and families about conditioned mentioned in B.A.	Clinical round with senior staff	

## Professionalism

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
M. Demonstrate respect, compassion, and integrity;	Observation	1. Objective
a responsiveness to the needs of patients and	Senior staff	structured
society	experience	clinical
	Case taking	examination
		2. Patient
		survey
N. Demonstrate a commitment to ethical principles		1. Objective
including provision or withholding of clinical care,		structured
confidentiality of patient information, informed		clinical
consent, business practices		examination
		2. 360o
		global rating
O. Demonstrate sensitivity and responsiveness to		1. Objective
patients' culture, age, gender, and disabilities		structured
		clinical
		examination

## **Systems-Based Practice**

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ILOs	Methods of	Methods of	
	teaching/	Evaluation	
	learning		
P. Work effectively in relevant health care	Observation	360o global	
delivery settings and systems.	Senior staff	rating	
	experience		
Q. Practice cost-effective health care and		Check list	
resource allocation that does not compromise		evaluation of	
quality of care.		live or recorded	
		performance	
R. Assist patients in dealing with system		- 360o global	
complexities.		rating	
		- Patient survey	

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

**Time Schedule: First Part** 

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skills	General Skills
basic microbiology	A	A		A-C
Basic Virology	${f A}$	A		A-C
Basic Mycology	$\mathbf{A}$	A		A-C
Laboratory strategy in diagnosis of bacterial infections	А-Н	A-D	A-I	A-K P-R
Gram positive cocci	А-Н	A-D	A-I	A-K P-R
Gram negative cocci	А-Н	A-D	A-I	A-K P-R
Gram positive rods	А-Н	A-D	A-I	A-K P-R
Gram negative rods	А-Н	A-D	A-I	A-K P-R
Spirochaetes	А-Н	A-D	A-I	A-K P-R
Poorly gram staining organisms	А-Н	A-D	A-I	A-K P-R
Important fungal infections	А-Н	A-D	A-I	A-K P-R
Antimicrobial chemotherapy	А-Н	A-D	A-I	A-K P-R
Technologic advances in clinical microbiology	А-Н	A-D	A-I	A-K P-R
Immunologic methods in clinical microbiology	А-Н	A-D	A-I	A-K P-R
Molecular methods in clinical	A-H	A-D	A-I	A-K

microbiology				P-R
Sterilization techniques	А-Н	A-D	A-I	A-K P-R
Nosocomial infection	А-Н	A-D	A-I	A-K P-R
Biological terrorism	А-Н	A-D	A-I	A-K P-R

### 5. Course Methods of teaching/learning:

- 1. Didactic: Lectures.
- 2. Seminars.
- 3. Service teaching.
- 4. Post graduate teaching
- 5. hand on work shops
- 6. Case presentation
- 7. Simulations

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

- 1-Didactic: Lectures.
- 2-Seminars.
- 3-Service teaching.
- 4-Post graduate teaching
- 5-hand on work shops
- 6-Case presentation
- 7-Simulations

#### 7. Course assessment methods:

#### i. Assessment tools:

- Clinical examination
- Written and oral examination

- Chick list
- ➤ log book & portfolio
- Procedure/case presentation
- ➤ MCQ examination
- Objective structured clinical examination
- Check list evaluation of live or recorded performance
- Patient survey
- ➤ 360o global rating
- ii. Time schedule: At the end of the first part
- iii. Marks: 60% of the first part (250 MARK)

#### 8. List of references

- i. Lectures notes
- i. Lectures notes

Staff members print out of lectures and/or CD copies

ii. Essential books

Jawetz medical microbiology

- iii. Recommended books
- 7- Diagnostic Microbiology (Koneman)
- iv. Periodicals, Web sites, etc
- Journal of Clinical Microbiology
- Clinical Microbiology reviews
- Journal of Bacteriology
- v. Others

None

## 9. Signatures

Course Coordinator: Prof. Heba	Head of the Department:
Gamal Rashed	Prof Dr Azza Mahmoud Ezz EL Din
Date:	Date:

## Course 3 Principal of general and clinical immunology

- Name of department: Clinical Pathology
  - Faculty of medicine
  - Assiut University
  - **2016-2017**

#### 1. Course data

- Course Title: Principal of general and clinical immunology
- Course code: CCP231B
- Speciality : Clinical Pathology
- Number of points: Credit points Didactic 2.5 credit (50%) practical 2.5 credit.(50%).total 5 credit points
- Department (s) delivering the course: Department of Clinical pathology- Faculty of Medicine-Assiut University.
  - Coordinator (s): Staff members of Clinical Pathology Department Immunology Unit.
  - Course coordinator: Prof.Waff Tohame
  - Assistant coordinator (s) Dr. Soheir Kamel
     Dr. Ashraf Hasabella
     Dr. Tark Taha

Date last reviewed: 9/2017

- General requirements (prerequisites) if any: None
- Requirements from the students to achieve course ILOs are clarified in the joining log book.

#### 2. Course Aims

- **2/1 To enable candidates to keep with international standards of General and Basic and clinical immunology** by teaching high level of laboratory skills, in addition to update medical knowledge as well as laboratory experience and competence in the area of clinical immunology.
- **2/2.** To help candidates develop an understanding of the appropriate use and interpretation of patient care tests in four sub-speciality areas of clinical pathology (clinical immunology).
- **2/3 To become familiar** with the consultation role of the clinical microbiology in patient care and research.
- **2/4 To provide candidates** with a glimpse of the current state of the art technology and equipment of laboratory testing in clinical microbiology.
- **5/5 To introduce candidates** to the basics of scientific medical research.

### 3. Course intended learning outcomes (ILOs):

## **A-Knowledge and understanding**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Describe detailed Principles of basic and clinical immunology i.e.	Didactic; -Lectures -Practical	-OSCE at the end of each year
*Basic Immunology: a- Introduction to immune system - Cells of immune system - Antigens and receptors b- Innate Immune system - Barrier to infection - cells of innate immune system	rounds -Seminars -practical rotations (service teaching)	-log book & portfolio - MCQ examination at the second year

- Innate immune function		-Oral and
d- Adaptive Immune system		written
- Molecules of adaptive Immunity		exam
- Cells and organs		
- Lymphocyte Antigen receptor		
- Lymphocyte development		
- Lymphocyte Activation		
- Lymphocyte function		
- Regulation of Adaptive responses		
e- Immunological tolerance		
*Basic Immunology Techniques:		
a- Safety and sampling		
b- Precipitation and agglutination		
c- Labeled Immunoassay		
d- Molecular diagnostics		
e- Flow cytometry.		
f- Automation in Immunology lab		
*Clinical Laboratory Immunology:		
a- Autoimmune diseases		
- Liver diseases		
- Endocrine diseases		
- Connective tissue diseases		
- Renal disease		
- Hematological diseases		
b- Immunoproliferative disorders		
<i>c</i> - Immune response, serological and molecular		
detection of Bacteria		
<i>d</i> - Immune response, serological detection of		
Parasitic and spirochete diseases		
<i>e</i> - Immune response, serological and molecular		
detection of Viral diseases- Hepatitis-EBV,		
Cytomegalo,		
rubella		
<i>f</i> - HIV disease		
B. Describe the etiology, clinical picture, and	-OSCE at the	

diagnosis of the following diseases and clinical conditions:  *Acquired immunodeficiency diseases  (Human immunodeficiency Virus)  - Molecular and biologic features  - Pathogenesis  - Clinical features  - Immune response  - Diagnosis  *- Virus of the immune system  *- Rheumatic Diseases  -Systemic lupus erythematosus  -Rheumatoid arthritis  * -Endocrine Diseases	end of each year -log book & portfolio - MCQ examination at the second year -Oral and written exam
-Type 1 (Insulin- dependent) Diabetes mellitus -Autoimmune thyroid disease *- Liver Diseases -autoimmune hepatitisPrimary biliary cirrhosis.	
-Viral Hepatitis  -Drug –induced hepatitis.  *- Renal Diseases.  *-Hematological diseases.	
C. State update and evidence based Knowledge of conditioned mentioned in A&B.  D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Immunology  E. Mention the basic ethical and medicolegal principles revenant to the immunology.	

F. Mention the basics of quality assurance to	
ensure good clinical care in Immunology	
G. Mention the ethical and scientific principles of medical research	
H. State the impact of common health problems in the field of Immunology on the society.	

## **B-** <u>Intellectual outcomes</u>

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning and diagnosis of common diseases related to Immunology.	Clinical rounds Senior staff experience	Procedure/case presentation Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Immunology.		
C. Design and present cases , seminars in common problem of immunology		
D-Formulate management plans and alternative decisions in different situations in the field of Immunology		

## **C-Practical skills**

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
A. Demonstrate an investigatory and analytic thinking approach to the following conditions: related to immunology mentioned in AA,AB	-Didactic; -Lectures -Clinical rounds	OSCE at the end of each year -log book &

	-Seminars -Clinical rotations (service teaching)	portfolio - One MCQ examination at the second half of the second year and another one in the third year
B. <b>Recommend</b> the following non invasive diagnostic	Clinical	-Procedure
laboratory procedures	round with	presentation
- Screening test for hypersensitivity and detection of	senior staff	- Log book
different allergens.	Observation	- Chick list
Cytogenetic analysis.	Post	
- Real time PCR and its applications.	graduate	
- Advanced molecular techniques.	teaching	
- All tests mentioned in D	Hand on	
C. Laterrayet the fellowing requirement	workshops	Due ee duue
C. Interpret the following non invasive	Clinical	Procedure
diagnostic laboratory procedures	round with	presentation
<ul><li>- Cytogenetic analysis.</li><li>- Quantitative PCR</li></ul>	senior staff	- Log book - Chick list
- Real time PCR and its applications.		- CHICK HSt
- Advanced molecular techniques.		
- All tests mentioned in D		
D. Perform the following non invasive diagnostic	Clinical	Procedure
laboratory procedures	round with	presentation
-Serological tests:	senior staff	- Log book
Widal test.	-Perform	- Chick list
Malta test.	under	J
RF.	supervision	
ASOT.	of senior	
CRP.	staff	
-Virological tests by AxSym		

*I long at it is unapuls and		
*Hepatitis markers.		
- Anti-HIV		
- Anti-HCV		
-HBsAg		
- Anti-HBsAg (AUSAB)		
- HBeAg		
- Anti-HBeAg		
- Anti-clgM		
- Anti-clgG		
- Rubella IgM		
- Rubella IgG		
- CMV IgM		
- CMV IgG		
- Toxoplasma IgM		
- Toxoplasma IgG		
-ELISA tests		
- RIBA test		
-Separation of lymphocytes		
- Counts of T cells		
- Counts of B cells		
- C3, C4, IgM, IgG, and IgA tests.		
- Autoantibodies tests.		
*Anti-ds DNA		
*ANA,		
* ASMA, AMA, LKMA		
*Anti-thyroid antibodies.		
*Anti-sperm antibodies.		
*Anti-cardiolipin		
-immunophenotyping by Flowcytometry		
-Qualitative PCR		
E. Carry out patient management plans for common	Clinical	
conditions related to Immunology.	round with	
	senior staff	
F. Use information technology to support patient care	222. 300.1	
decisions and patient education in common clinical		
accisions and patient cadeation in common cimical		

situations related to Immunology.	
G. Provide health care services aimed at preventing health	
problems related to Immunology like: conditioned	
mentioned in A.A.	
H-Provide patient-focused care in common conditions	
related to Immunology, while working with health care	
professionals, including those from other disciplines like:	
Conditions mentioned in B.A.	
I. Write competently all forms of reports related to the	
Immunology, (lab reports).	

## <u>D-General Skills</u> 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)	-Case log -Observation and supervision -Written & oral communication	Procedure/case presentation -Log book and Portfolios
B. Appraises evidence from scientific studies(journal club)	Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	Clinical rounds Senior staff experience	

## **Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain <b>diagnostic</b> and ethically sound relationship with patients.	Simulations Clinical round Seminars Lectures Case presentation Hand on	Global rating Procedure/case presentation Log book Portfolios Chick list
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.	workshops	
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 common problems related to Immunology.	Clinical (practical) round Seminars	
<ul><li>K. Write a report in:</li><li>-All investigations in immunology.</li></ul>	Senior staff experience	Chick list
L. Council patients and families about: -Viral hepatitis -Transmission of hepatitis C and B - HIV	Clinical round with senior staff	

## Professionalism

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation Senior staff experience Case taking	1. Objective structured clinical examination 2. Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		1. 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		1. Objective structured clinical examination 2. 360o global rating

## **Systems-Based Practice**

Systems-based Fractice		-
ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	Observation Senior staff experience	360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		- 360o global rating - Patient survey

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

**Time Schedule: First Part** 

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skills	General Skills
Cells, tissues and organs of	A,C-D	Α		Α
Anatomy and function of lymphoid tissue.	A,C-D	Α		Α
Mechanism and Pathways of lymphocytes recirculation and homing	A,C-D	Α		A
Antigen	A,C-D	Α		Α
Innate Immunity	A,C-D	A-D		A-C
Complement	A,C-D	A-D		A-C
Antigen Presenting Cells and antigen presentation	A,C-D	Α		A-R
Adaptive Immunity	A,C-D	A-D		A-C
Immunoglobulin	A,C-D	A-D		A-R
Natural killer cells	A,C-D	A-D		A-C
Cytokines	A,C-D	A-D		A-C
The major histocompatibiltiy complex	A,C-D	Α		A-C
Apoptosis	A,C-D	Α		A-C
Immunological Tolerance	Α	Α		A-C
Immune response to viral	Α	Α		A-C
Acquired immunodeficiency diseases	А-Н	A-D	A-I	A-K P-R
Virus of the immune system	А-Н	A-D	A-I	A-K P-R
Rheumatic Diseases	А-Н	A-D	A-I	A-K P-R

Endocrine Diseases	A-H	A-D	A-I	A-K
				P-R
Liver Diseases	A-H	A-D	A-I	A-K
				P-R
Renal Diseases.	A-H	A-D	A-I	A-K
				P-R
Hematological diseases	A-H	A-D	A-I	A-K
				P-R

## 5. Course Methods of teaching/learning:

- 1-Didactic: Lectures.
- 2-Seminars.
- 3-Service teaching.
- 4-Post graduate teaching
- 5-hand on work shops
- 6-Case presentation
- 7-Simulations

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

- 1-Didactic: Lectures.
- 2-Seminars.
- 3-Service teaching.
- 4-Post graduate teaching
- 5-hand on work shops
- 6-Case presentation
- 7-Simulations

#### 7. Course assessment methods:

- i. Assessment tools:
- Clinical examination
- Written and oral examination
- Chick list
- ➤ log book & portfolio
- Procedure/case presentation
- MCQ examination
- Objective structured clinical examination
- Check list evaluation of live or recorded performance
- Patient survey
- 3600 global rating
- ii. Time schedule: At the end of the first part
- iii. Marks: 250 mark
- 8. List of references
  - i. Lectures notesi. Lectures notes

Staff members print out of lectures and/or CD copies

- ii. Essential books
- -Basic immunology
- -Basic and clinical immunology
- iii. Recommended books

Medical immunology

#### iv. Periodicals, Web sites, ... etc

- Egyptian journal of immunology
- The journal of immunology
- Journal of clinical immunology
- v. Others

None

## 9. Signatures

<b>Course Coordinator: Prof.Waff</b>	Head of the Department:
Tohame	Dr Azza Mahmoud Ezz EL Din
Date:	Date:

#### **Course 4 Internal Medicine**

- Name of department: Internal Medicine
  - Faculty of medicine
  - Assiut University
  - **2016/2017**

#### 1. Course data

- Course Title: internal medicine
- Course code: CCP218
- Speciality : Clinical Pathology
- Number of points: 2 Credit points for Didactic(50%),2 credit points for training (50%).total 4 credit points.
- Department (s) delivering the course: Department of internal medicine in conjunction with Clinical pathology.
- Coordinator (s): Staff members of internal medicine Department in conjunction with Clinical Pathology Department as annually approved by both departments councils
- Date last reviewed: 9/2017
- General requirements (prerequisites) if any: None
- Requirements from the students to achieve course ILOs are clarified in the joining log book.

## 2. Course Aims

2/1-The student should acquire the **principals** of **detailed internal medicine** necessary for clinical pathology in clinical reasoning and diagnosis.

## 3. Course intended learning outcomes (ILOs):

## **A-Knowledge and understanding**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Explain update and evidence based etiology, clinical picture, diagnosis and management of the following:  *Kidney diseases: - Glomerulonephritis - Nephrotic Syndrome - Renal failure *Electrolytes * Acute coronary syndrome * Diabetes Mellitus *Diabetes Insipidus *Liver diseases: - Hepatitis - Liver cirrhosis - Markers of HCC *Hematology: - Anemia	-Lectures -Laboratory work	-Written, oral and practical examination - Log book
- Anemia - Leukemia		
- Lymphoma		
*Rheumatology		
- Systemic Lupus Erythermatosus		
- Rheumatoid Artheritis		

## **B-Intellectual outcomes**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the clinical presentation of different cases related to clinical pathology.	Didactic (lectures,	-Written,
	seminars, tutorial)	examination

## **C-Practical skills**

ILOs	Methods of	Methods of
	teaching/ learning	Evaluation
A- Take history, examine and clinically diagnose different conditions related to internal medicine	Laboratory work	<ul><li>practical exam.</li><li>Logbook</li></ul>
B-Use information technology to support decisions related to internal medicine.		

## <u>D-General Skills</u> Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform data management including data entry and analysis.	-Observation and supervision -Written and oral communication	Log book

## **Interpersonal and Communication Skills**

interpersonal and Communication Skins				
ILOs	Methods of	Methods of		
	teaching/	Evaluation		
	learning			
<u>B</u> . Create and sustain a therapeutic and ethically	-Observation	Log book		
sound relationship with patients	and			
	supervision			
	-Written and			
	oral			
	communication			
C. Perform the following oral communications:				
Interpretation of the results of different				
investigations related to internal medicine				
D. Write a report in common condition mentioned in				
A.A				

## Professionalism

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and	Observation -Senior staff	Logbook
F. <b>Demonstrate a commitment</b> to ethical principles	experience	
including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		

## **Systems-Based Practice**

ILOs	Methods of teaching/ learning	Methods of Evaluation
G. Work effectively in relevant health care delivery settings and systems.	Observation -Senior staff experience	Logbook

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

**Time Schedule: First Part** 

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skills	General Skills
Kidney diseases: - Glomerulonephritis - Nephrotic Syndrome - Renal failure	A	A	A,B	A-D
Electrolytes	A	A	A,B	A-D
Acute coronary syndrome	A	A	A,B	A-D
Diabetes Mellitus	A	A	A,B	A-G
Diabetes Insipidus	A	A	A,B	A-D
Liver diseases: - Hepatitis - Liver cirrhosis - Markers of HCC	A	A	A,B	A-G
Hematology: - Anemia - Leukemia - Lymphoma	A	A	A,B	A-G
rheumatology - Systemic Lupus Erythermatosus - Rheumatoid Arthritis	A	A	А,В	A-G

## **5. Course Methods of teaching/learning:**

- 1-Didactic (lectures, seminars, tutorial)
- 2-Inpatient
- 3-Clinical rounds
- 4-Clinical rotations
- 5-Laboratory work
- 6-Observation and supervision
- 7-Written & oral communication
- 8-Senior staff experience

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

- 2. Extra Didactic (lectures, seminars, tutorial) according to their needs
- 3. Extra Laboratory work according to their needs

### 7. Course assessment methods:

- i. Assessment tools: 1- Written, oral and practical examination.2-Log book.
- ii. Time schedule: At the end of the first part
- iii. Marks: 65 % Didactic and 35% oral (100 marks of the first part)

#### 8. List of references

- i. Lectures notes
  - Course notes
  - Staff members print out of lectures and/or CD copies

## 9. Signatures

Course Coordinator:	Head of the Department:
Date:	Date:

### **Second Part**

#### **Course 5 / Clinical pathology**

- Name of department: Clinical Pathology
  - Faculty of medicine
  - Assiut University
  - **2016-2017**

#### 1. Course data

- Course Title: Clinical Pathology
- Course code: CCP231C
- Speciality : Clinical Pathology
- Number of Credit points(CP) Didactic 24CP, (17.2%) practical 116CP.(82.8%).total 140 credit points
- Department (s) delivering the course: Department of Clinical pathology- Faculty of Medicine-Assiut University.
  - Coordinator (s): Staff members of Clinical Pathology Department
  - Course coordinator: Prof.Lubna Tag
  - **4** Assistant coordinator (s):

Prof. Dr. Monazzama Abdel Alaal Fadel

Prof.Dr. Soheir Mohammad

Prof.Dr. Madeha Yones

Dr. Ebtsam Farouk

**Dr.Omenia Abdel Moneim** 

Dr. Ola Abd-Elhalim

**Dr.Sahar El-Gamal** 

Dr. Asmaa Omar

- Date last reviewed: 9/2017
- General requirements (prerequisites) if any: None
- Requirements from the students to achieve course ILOs are clarified in the joining log book.
  - **4** This course consists of 4 Units (Modules)
  - **4** 1-Unit (Module) 1 Clinical Chemistry.
  - **4** 2- Unit (Module) 2 Hematology
  - 4 3- Unit (Module) 3 Immunology
  - 4 4- Unit (Module) 4 Microbiology
  - (subsidiary rotation : Blood bank, Emergency Lab, Outpatient Clinic)
  - **Weighting of units and time table in Speciality course.**

Units' Titles' list	% from total	Level (Year)	Core Credit points		nts
	Marks		Didactic	training	Total
1)Unit 1 "Clinical	35.8 %	1&2&3	11	39	50
Chemistry."					
2)Unit 2 " Hematology".	35.8 %	1&2&3	11	39	50
3) Unit 3"Clinical	14.2%	3	1	19	20
Immunology"					
4)Unit 4"Clinical	14.2 %	3	1	19	20
Microbiology"					
Total No. of Units:	4		24	116	140



#### **Unit Coordinator (s):**

Unit	Principle coordinator	Assistant coordinator
Clinical	Dr. Omenia Abdel-	Dr. Ebtsam Farouk
Chemistry	Moneam	Dr. Heba Abdel-Hafiz
Hematology	Dr. Sahar Abdala El-	Dr. Ola Abdel-Halim Afifi
	Gamal	
Immunology	Prof. Wafaa Tohamy	Prof.Dr.Azza Mahmoud
Microbiology	Prof. Heba Gamal	Dr. Mohammad Zakaria
	Rashed	

#### 2. Course Aims

- **2/1 To enable candidates to keep with international standards of clinical Pathology** by teaching high level of laboratory skills, in addition to update medical knowledge as well as laboratory experience and competence in the area of clinical chemistry, hematology, immunology, microbiolgy, blood banking and emergency lab and enabling the candidates of making appropriate referrals to a sub-specialist
- **2/2.** To help candidates develop an understanding of the appropriate use and interpretation of patient care tests in four sub-speciality areas of clinical pathology (clinical chemistry, hematology, immunology, and microbiology).
- **2/3 To become familiar** with the consultation role of the clinical pathologist in patient care and research.
- **2/4 To provide candidates** with a glimpse of the current state of the art technology and equipment of laboratory testing in clinical chemistry, hematology, immunology, and microbiology.
- **2/5 To introduce candidates** to the basics of scientific medical research.
- **2/6** To provide the candidates with master degree:
  - Enabling them to start professional careers as specialists in Egypt.
  - Making them recognized as specialists abroad.
  - Enabling them to pursue higher studies and subspecialties.
- Enabling them to understand and get the best of published scientific research and do their own.
  - Updating their knowledge and self learning.
- Fellow the ethical standard of medical and clinical practice of patient care and research work according to our local Ethical Committee.

## 3. Course intended learning outcomes (ILOs):

## **Unit (Module 1) Clinical Chemistry**

## **A-Knowledge and understanding**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Describe the detailed knowledge of the	-Lectures	-Written,
following;	-Laboratory	oral and
I. Laboratory principles:	work	practical
* General laboratory techniques, procedures and		examination
safety.		- Log book
<ul> <li>Chemicals and related substances.</li> </ul>		
<ul> <li>Centrifugation and weighing.</li> </ul>		
<ul> <li>Volumetric equipments and its calibration.</li> </ul>		
<ul> <li>Concept of solvent and solute</li> </ul>		
Buffer solution		
<ul> <li>Units of measurement.</li> </ul>		
Safety.		
*Specimen collection and other preanalytical		
variables.		
II. Analytical techniques and instrumentation:		
1)Spectrophotometeric techniques		
*Explain the general principles of each analytic		
method.		
*Describe the operation and components parts		
of flame emission spectrophotometry and atomic		
absorption spectrophotometry, osmometer, ion		
selective electrode, PH electrode, electrophoresis		
and chemiluminescence's.		
RID, immune electrophoresis		
2)Basic principles of radioactivity and its		

#### measurements.

#### 3) Electrochemistry.

- Potentiometry
- Amperometry
- Coulometry
- conductometry

#### 4)Chromatography / mass spectrometry:

HPLC.

Gas chromatography

Mass spectrometry.

#### 5) Automation in clinical laboratory

- \*Explain the major steps in automated analysis
- \*Operate properly on different instrumentation and auto analyzers.

#### III. <u>Laboratory operations.</u>

- Statistical concepts.
- Reference intervals.
- Method selection and evaluation
- quality assurance and quality control
- Proficiency testing and laboratory accreditation.

#### IV. Analytes:

#### **Carbohydrates:**

- 1) Regulation of glucose metabolism.
- 2) Laboratory findings in IDDM, NIDDM.
- 3) Metabolic complications of Diabetes Mellitus
- 4) Hypoglycemia.

## <u>Lipid chemistry</u>

- 1) Classification of lipoproteins and apolipoproteins.
- 2) Disorders of Lipoprotein metabolism.
- 3) Significance of apolipoproteins in health and disease.
- 4) Diagnosis of lipoprotein disorders.

## Amino acids and plasma proteins:

- 1)-Basic structure and metabolism.
- 2)-Amino acidopathies.
- 3)-General characteristics of plasma proteins.
- 4)-General functions of plasma proteins.
- 5)-Acute phase proteins.
- 6)-Plasma proteins and disease.
- 7)-Benign versus malignant monoclonal gammopathy.
- 8)-Disorders of purine metabolism (primary and secondary gout).

## Renal functions and non protein nitrogenous compounds:

- 1) Biological function of the kidneys.
- 2) Glomerular and tubular functions and the clinical significance of their assessment.
- 3) Glomerular and tubular diseases.
- 4) Types of renal failure.
- 5) Clinical significance of total urine proteins, urine albumin, microalbuminuria,  $B_2$  microglobulin,  $\alpha 1$ microglobulin, retinol binding protein and albumin / creatinine ratio.
- 6) Biosynthesis, metabolism and excretion.
- 7) Clinical and metabolic conditions associated with the increase or the decrease in their values.

  Physiology and disorders of water, electrolytes and acid base metabolism:
- 1) Total body water and electrolyte distribution and their clinical significance.
- 2) Electrolytes and their clinical significance.
- 3) Physiological buffer systems and their role in regulation of blood PH

- 4) Henderson Hasselbalch equation.
- 5) Conditions associated with abnormal acid- base states (Acidosis and alkalosis).

#### Enzymes:

- 1- Classification, factors affecting their activity.
- 2- Hepatobiliary enzymes.
- 3- Cardiac enzymes.
- 4- Pancreatic enzymes.
- 5- Bone enzymes

#### Liver:

- 1) Biochemical functions of the liver.
- 2) Disorders of bilirubin metabolism and types of jaundice.
- 3) Clinical significance of enzyme assay in liver disease.
- 4) Disorders of the liver (acute and chronic hepatitis, cirrhosis, alcoholic, drug induced, metabolic, cholestatic, nutritional liver diseases, fatty liver, hepatic tumor, hepatocellular carcinoma, biliary tract diseases)
- 5) Diagnostic strategy of liver disease.

#### Cardiac markers:

- 1) Tissue distribution of cardiac markers (CK,CKMB, LDH, troponin I, troponin T and myoglobin)
- 2) Clinical utility of cardiac markers in detection of acute myocardial infarction, minor myocardial injury and in monitoring reperfusion following thrombolytic therapy.

#### Mineral and bone metabolism:

- 1) Hormonal and integrated control of mineral metabolism.
- 2) Function and clinical significance of minerals in bone metabolism.

- 3) Disorders of mineral metabolism (hypo&hypercalcaemia, hypo&hyperphosphtaemia &hypo and hypermagnesemia).
- 4) Metabolic bone diseases (osteoporosis, osteomalacia, Paget $^{\square}$  s disease and renal osteodystrophy.
- 5) Clinical significance of biochemical markers of bone turnover.

#### Gastric, pancreatic and intestinal functions:

- 1) Hormones and enzymes synthesized in gastrointestinal tract as well as their functions and clinical significance.
- 2) Neuroendocrine tumours: Gastrinoma, Zollinger Ellison syndrome and Vipoma.

#### Endocrinology;

- . Synthesis, action and regulation of hypothalamic pituitary, adrenal, gonadal, thyroid and parathyroid hormones.
- . Clinical significance of hormone derangement.
- . Evaluation of the functional status of each gland.
- . Analytical assay of different hormones as:
- -T3, T4 &TSH.
- -Parathyroid hormones
- -Testosterone
- -ACTH,GH, LH, FSH, progesterone, estrogen& prolactin
  - -Cortisol
  - -insulin

Disorders of thyroid gland

Hyperthyroidism.

Hypothyroidism. Non thyroidal illness.

Disorders of adrenal gland

Investigation of suspected adrenocortical hyper function.

Investigation of suspected adrenocortical hypofunction .

Congenital adrenal hypoplesia.

Pheochromocytoma.

Hypothalamic and pituitary hormones

Anterior pituitary hormones (GH, PRO, FSH releasing hormones.)

Posterior pituitary hormones (ADH).

Gonadal function:

Male gonadal function.

Investigation of case of male infertility.

Female gonadal function.

Investigation of case of female infertility.

Errors of amino, organic and fatty acids metabolism

- 1) Basic chemistry Biochemical diagnosis (prenatal- newborn screening and evaluation of symptomatic patients).
- 2) Disorders of amino, organic and fatty acids oxidation metabolism.

## **Pregnancy:**

- 1) Biochemical changes that take place in pregnancy.
- 2) Proteins and hormones produced by the placenta and their clinical significance.

## Vitamins and trace elements:

- 1) Classification.
- 2) Clinical manifestations of their deficiencies. Body fluid analysis:

Clinical utility of testing the cerebrospinal fluid, serous, synovial, amniotic fluid and sweat.

<u>Analytes of haemoglobin metabolism and porphyrins</u>

1) Synthesis, chemistry and clinical significance of		
haemoglobin, porphyrins and myoglobin.		
2) Laboratory data associated with		
hemoglobinopathies and thalassaemia.		
Clinical chemistry of the geriatrics and pediatrics.		
1) Establishing reference intervals for elderly and		
pediatrics.		
2) Biochemical and physiological changes of		
aging.		
3) Endocrine function changes.		
4) Renal and hepatic function changes.		
5) Lipid and enzyme changes		
Tumour markers:		
1) Classification of tumour markers.		
2) Clinical utilities of tumour marker		
B. Describe the etiology, clinical picture, and	-	
diagnosis of the following diseases and clinical		
conditions:		
Carbohydrates:		
1) Regulation of glucose metabolism.		
2) Laboratory findings in IDDM, NIDDM.		
3) Metabolic complications of Diabetes Mellitus		
4) Hypoglycemia.		
<u>Lipid chemistry</u>		
1) Classification of lipoproteins and		
apolipoproteins.		
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- 3)-General characteristics of plasma proteins.
- 4)-General functions of plasma proteins.
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- **7)** Clinical and metabolic conditions associated with the increase or the decrease in their values.

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- 5) Conditions associated with abnormal acid-base states (Acidosis and alkalosis).

#### **Enzymes:**

- 6- Classification, factors affecting their activity.
- 7- Hepatobiliary enzymes.
- 8- Cardiac enzymes.
- 9- Pancreatic enzymes.
- 10- Bone enzymes

#### Liver:

- 1) Biochemical functions of the liver.
- 2) Disorders of bilirubin metabolism and types of jaundice.
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- . Clinical significance of hormone derangement.
- . Evaluation of the functional status of each gland.
- . Analytical assay of different hormones as:
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  - -Testosterone
- -ACTH,GH, LH, FSH, progesterone, estrogen& prolactin
  - -Cortisol
  - -insulin

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Hypothyroidism. Non thyroidal illness.

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- 2) Clinical manifestations of their deficiencies.

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- 2) Laboratory data associated with

hemoglobinopathies and thalassaemia. Clinical chemistry of the geriatrics and pediatrics	
<ol> <li>Establishing reference intervals for elderly and pediatrics.</li> <li>Biochemical and physiological changes of aging.</li> <li>Endocrine function changes.</li> <li>Renal and hepatic function changes.</li> <li>Lipid and enzyme changes</li> </ol>	
Tumour markers: 1) Classification of tumour markers. 2) Clinical utilities of tumour mark	
C. State update and evidence based Knowledge of conditioned mentioned in A&B.	
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to clinical chemistry	
E. Mention the basic ethical and medicolegal principles revenant to the clinical chemistry.	
F. Mention the basics of quality assurance to ensure good clinical care in his field	
G. Mention the ethical and scientific principles of medical research	 
H. State the impact of common health problems in the field of speciality on the society.	

### **B-** <u>Intellectual outcomes</u>

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of basic with clinical reasoning and diagnosis of common diseases related to clinical chemistry.	Clinical rounds Senior staff experience Didactic (lectures, seminars, tutorial)	Procedure/case presentation Log book Written, oral and practical examination
<b>B. Demonstrate</b> an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to clinical chemistry.		
C. <b>Design and present</b> cases, seminars in common problem in clinical chemistry.		
D-Formulate management plans and alternative decisions in different situations in the field of the clinical chemistry.		

## <u>C -Practical skills (Patient Care)</u>

ILOs	Methods of teaching/ learning	Methods of Evaluation
<ul> <li>a. Demonstrate an investigatory and analytic thinking approach to the following conditions: related to clinical chemistry</li> <li>I. <u>Laboratory principles:</u></li> <li>* General laboratory techniques, procedures and safety.</li> </ul>	-Didactic; -Lectures -Clinical rounds -Seminars	-log book & portfolio -MCQ examination -formative

Chemicals and related substances.	-Clinical	assessment
Centrifugation and weighing.	rotations	
<ul> <li>Volumetric equipments and its calibration.</li> </ul>	(service	
Concept of solvent and solute	teaching)	
Buffer solution		
Units of measurement.		
Safety.		
*Specimen collection and other preanalytical variables.		
III. Analytical techniques and instrumentation:		
1)Spectrophotometeric techniques		
*Explain the general principles of each analytic method.		
*Describe the operation and components parts of flame		
emission spectrophotometry and atomic absorption		
spectrophotometry, osmometer, ion selective electrode,		
PH electrode, electrophoresis and chemiluminescence's.		
RID, immune electrophoresis		
2)Basic principles of radioactivity and its measurements.		
3) Electrochemistry.		
<ul><li>◆Potentiometry</li></ul>		
<ul><li>Amperometry</li></ul>		
<ul><li>◆Coulometry</li></ul>		
<ul><li>◆ conductometry</li></ul>		
4) Chromatography / mass spectrometry:		
HPLC.		
Gas chromatography		
Mass spectrometry.		
5) Automation in clinical laboratory		
*Explain the major steps in automated analysis		
*Operate properly on different instrumentation and auto		
analyzers.		
IV. <u>Laboratory operations.</u>		
• Statistical concepts.		
• Reference intervals.		
Method selection and evaluation		
quality assurance and quality control		

• Proficiency testing and laboratory accreditation.

#### IV. Analytes:

#### 1- Carbohydrates:

- 1. Perform glucose tolerance test.
- 2. Glycated haemoglobin and fructoseamine measurement.
- 3. Detection of ketone bodies.
- 4. Microalbumin measurement.
- 5. Islet autoantibodies and insulin testing.

#### 2) Lipids and lipoproteins

1. Analytical assays of lipids, lipoproteins and apolipoproteins.

#### 3) Proteins:

- 1. Analytical methods for determination of total protein, albumin and protein fractionation.
- 2. Serum protein electrophoresis and immunofixation and describe the migration pattern of plasma proteins in health and disease.

#### 4) Renal functions:

- 1. Analytical methods, principles and procedures and other related parameters of kidney functions (urea, creatinine, uric acid and ammonia).
- 2. Physical, chemical and microscopic examination of urine.

#### 5) Liver:

Measurement of bilirubin, proteins, albumin, A / G ratio, enzymes (ALT, AST, ALP, GGT, 5 nucleotidase).

#### 6) Cardiac markers:

Analytical measurements of cardiac proteins and enzymes:

Tryponin, CK, CK-MB and LDH

#### 7) Mineral and bone metabolism:

Analytical assays of calcium, phosphorus and magnesium.

8) Physiology and disorders of water, electrolytes and

#### acid base metabolism:

- 1. Analytical techniques used to determine electrolyte concentrations.
- 2. Operating blood gas analyzers.

#### 9) Endocrinology:

Analytical assays of different hormones

- T3, T4 &TSH.
- -Parathyroid hormones
- -Testosterone
- -ACTH,GH, LH, FSH, progesterone, estrogen& prolactin
- -Cortisol
- -insulin

#### 10) Tumour markers:

 $\alpha$  feto protein

**CEA** 

CA19-9

CA-125

CA-15-3

Total and free PSA

**FBHCG** 

#### 11) Pregnancy:

- 1. Measurement of chorionic gonadotrophin and its subunits.
- 2.  $\alpha$  Fetoprotein and amniotic fluid bilirubin and its subunits.

#### 12) Body fluid analysis:

Physical, chemical and microscopic examination of these fluids (ascetic, CSF, pleural, synovial and other body fluids).

# 13) Analytes of haemoglobin metabolism and porphyrins:

- 1. To be able to differentiate between haemoglobinuria and myoglobinuria.
- 2. Analysis of porphyrin precursors (PBG, ALA) in urine.

B. <b>Recommend</b> the following non invasive diagnostic laboratory procedures in  1- Carbohydrates:  1. Perform glucose tolerance test.	Clinical round with senior staff Observation	-Procedure presentation - Log book - Chick list
2. Glycated haemoglobin and fructoseamine measurement.	Post graduate	
3. Detection of ketone bodies.	teaching	
4. Microalbumin measurement.	Hand on	
5. Islet autoantibodies and insulin testing.	workshops	
2) Lipids and lipoproteins		
1. Analytical assays of lipids, lipoproteins and apolipoproteins.		
3) Proteins:		
1. Analytical methods for determination of total protein,		
albumin and protein fractionation.		
2. Serum protein electrophoresis and immunofixation and		
describe the migration pattern of plasma proteins in health and disease.		
4) Renal functions:		
1. Analytical methods, principles and procedures and other related parameters of kidney functions (urea,		
creatinine, uric acid and ammonia).		
2. Physical, chemical and microscopic examination of urine.		
5)Liver:		
Measurement of bilirubin, proteins, albumin, A / G ratio,		
enzymes (ALT, AST, ALP, GGT,5 nucleotidase).		
6) Cardiac markers:		
Analytical measurements of cardiac proteins and		
enzymes: Tryponin, CK, CK-MB and LDH		
7) Mineral and bone metabolism:		
Analytical assays of calcium, phosphorus and magnesium.  8) Physiology and disorders of water, electrolytes and		

#### acid base metabolism:

- 1. Analytical techniques used to determine electrolyte concentrations.
- 2. Operating blood gas analyzers.

#### 9) Endocrinology:

Analytical assays of different hormones

- -T3, T4 &TSH.
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- -Testosterone
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#### 12) Body fluid analysis:

Physical, chemical and microscopic examination of these fluids (ascetic, CSF, pleural, synovial and other body fluids).

# 13) Analytes of haemoglobin metabolism and porphyrins:

1. To be able to differentiate between haemoglobinuria and myoglobinuria.

2. Analysis of porphyrin precursors (PBG, ALA) in urine.		
C. Interpret the following non invasive	Clinical	Procedure
diagnostic laboratory procedures	round with	l •
- mentioned in.C.B	senior staff	- Log book
		- Chick list
D. Perform the following non invasive diagnostic	Clinical	Procedure
laboratory procedures for	round with	•
*Disorders of carbohydrate metabolism.	senior staff	- Log book
*Disorders of lipid metabolism.	-Perform	- Chick list
* Disorders of protein metabolism.	under	
* Disorders of renal function metabolism.	supervision	
* Disorders of liver function.	of senior	
* Disorders of cardiac function.	staff	
* Disorders of mineral and bone metabolism.		
* Disorders of gastric, pancreatic and intestinal		
function.		
*Disorders of water and electrolytes and acid base		
metabolism.		
*Disorders of pituitary function.		
*Disorders of thyroid function.		
* Disorders of adrenal function.		
* Disorders of reproductive endocrine function.		
* Disorders of amino acids, fatty acids and organic acid		
metabolism.		
*Pregnancy and its complications.		
*Disorders of vitamins and trace elements.		
* Disorders of body fluid analysis.		
*Disorders of hemoglobin metabolism and porphyrins.		
*Clinical chemistry of geriatrics and pediatrics.		
*Tumor markers and its clinical applications.		
E. Carry out patient management plans for common	Clinical	
conditions related to Clinical chemistry.	round with	
	senior staff	

F. Use information technology to support patient care	
decisions and patient education in common clinical	
situations related to Clinical chemistry.	
G. Provide health care services aimed at preventing health	
problems related to Clinical chemistry. like: conditions	
mentioned in B.A.	
H-Provide patient-focused care in common conditions	
related to Clinical chemistry., while working with health	
care professionals, including those from other disciplines	
like:	
Conditions mentioned in B.A.	
I. Write competently all forms of professional reports	 
related to the Clinical chemistry (lab reports).	

# <u>D - General Skills</u> 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)	-Case log -Observation and supervision -Written & oral communication	Procedure/case presentation -Log book and Portfolios
B. Appraises evidence from scientific studies(journal club)	Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.  D. Perform data management including data		
entry and analysis.  E. Facilitate learning of junior students and	Clinical rounds	
other health care professionals.	Senior staff experience	

## **Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain <b>diagnostic</b> and ethically sound relationship with patients.	Simulations Clinical round Seminars Lectures Case presentation Hand on	Global rating Procedure/case presentation Log book Portfolios Chick list and
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.	workshops	
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 common problems related to Immunology.	Clinical (practical) round Seminars	
<ul><li>K. Write a report in:</li><li>-All investigations in immunology.</li></ul>	Senior staff experience	Chick list
L. Council patients and families about: -Viral hepatitis -Transmission of hepatitis C and B - HIV	Clinical round with senior staff	

### Professionalism

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation Senior staff experience Case taking	1. Objective structured clinical examination 2. Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		1. 360o global rating
O. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities		1. Objective structured clinical examination 2. 3600 global rating

### **Systems-Based Practice**

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery	Observation	1. 360o
settings and systems.	Senior staff	global rating
	experience	
Q. Practice cost-effective health care and resource		1. Check list
allocation that does not compromise quality of care.		evaluation
		of live or
		recorded
		performance
R. Assist patients in dealing with system		1. 360o
complexities.		global rating
		2. Patient
		survey

# Course 5; Unit (Module 2) Hematology

# A-Knowledge and understanding

ILOs	Methods of teaching/	Methods of Evaluation
	learning	
A. Illustrate the detailed of the following:	-Lectures	-Written, oral
* Normal Hematologic System:	-Laboratory	and practical
- Hematopoiesis	work	examination
- The Erythrocyte		- Log book
- Granulocytes and Monocytes		
- The lymphocytes		
- Normal Hemostasis		

- Red Cell immunohematology
- Blood cell antigens and antibodies
- \* Cell Biology
- \*General aspects of Hematologic Malignancy
- \* Bone marrow transplantation
- \*. Disorders of Red Cells

Disorders of iron metabolism and haem synthesis

- 1. Hemolytic anemias
- 2. Hereditary disorders of hemoglobin structure and synthesis
- 3. Other red cells disorders:

(Aplastic anemia, megaloblastic anemia, bone marrow failure dyserythropoiesis),

- \* Non malignant Disorders of Leukocytes and the Spleen
- \* Hematologic malignancies
  - 1. Acute Leukemias
  - 2. Myeloproliferative disorders
  - 3. Lymphoproliferative disorders
  - 4. Plasma cell dyscrasias
- \* Hematologic aspects of systemic diseases
- \* Disorders of Hemostasis
  - 1. Introduction: Diagnostic approach to the bleeding disorders
  - 2. Quantitative platelet disorders
  - 3. Qualitative inherited and acquired platelet disorders
  - 4. Vascular bleeding disorders
  - 5. Inherited and acquired coagulation bleeding disorders
  - 6. Fibrinolysis and its disorders
  - 7. Thrombosis and antithrombotic therapy
- \* BLOOD BANK
  - 1. Blood cell antigens and antibodies and

their in vitro interactions	
Clinical blood transfusion	
B-Describe the etiology, clinical picture, and	Didactic;
diagnosis of the following diseases and clinical	-Lectures
conditions:	-Clinical
*. Disorders of Red Cells	rounds
Disorders of iron metabolism and haem synthesis	-Seminars
1Hemolytic anemias	-Clinical
2Hereditary disorders of hemoglobin	rotations
structure and synthesis	(service
30ther red cells disorders:	teaching)
(Aplastic anemia, megaloblastic anemia, bone	
marrow failure dyserythropoiesis),	
* Non malignant Disorders of Leukocytes and the	
Spleen (4h)	
* Hematologic malignancies	
1Acute Leukemias	
2- Myeloproliferative disorders	
3- Lymphoproliferative disorders	
4- Plasma cell dyscrasias	
* Disorders of Hemostasis	
1-Introduction: Diagnostic approach to the	
bleeding disorders	
2-Quantitative platelet disorders	
3-Qualitative inherited and acquired platelet	
disorders	
4-Vascular bleeding disorders	
5-Inherited and acquired coagulation	
bleeding disorders	
6-Fibrinolysis and its disorders	
7-Thrombosis and antithrombotic therapy	
C. State update and evidence based Knowledge of	
conditioned mentioned in A &B.	
D. Memorize the facts and principles of the	
relevant basic and clinically supportive sciences	

related to hematology	
E. Mention the basic ethical and medicolegal principles revenant to the hematology	
F. Mention the basics of quality assurance to ensure good clinical care in hematology	
G. Mention the ethical and scientific principles of medical research	
H. State the impact of common health problems in the field of speciality on the society.	

### **B-** Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning and diagnosis of common diseases related to hematology.  B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common	Didactic (lectures, seminars, tutorial)	-Written, oral and practical examination
clinical situations related to hematology.  C. Design and present cases, seminars in common problem of hematology  D-Formulate management plans and alternative decisions in different situations in the field of the hematology.		

## **C-** Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Demonstrate an investigatory and analytic thinking approach to the following conditions: related to hematology mentioned in AA,AB	-Didactic; -Lectures -Clinical rounds	-log book & portfolio -MCQ examination

B. Recommend the following non	-Seminars -Clinical rotations (service teaching) Clinical round with	-formative assessment  Procedure presentation
invasive/invasive diagnostic procedures  1. Collection and handling of blood  2. Basic hematological techniques: -Manual CBC, reticulocyte estim., ESR -Automated hematology and interpretation of CBC reports  3. Preparation and staining of blood and bone marrow films  4. Bone marrow aspiration and biopsy 5. Blood cell morphology in health and disease 6. Blood Parasite 7. Investigations and differential diagnosis of anemias:  A- non-hemolytic: - Iron profile (IDA-overload) B-hemolytic:  *Mambrane and enzyme def	senior staff Observation Post graduate teaching Hand on workshops	- Log book - Chick list
*Membrane and enzyme def, 1- Osmotic fragility test 2-screening for G6PD def.  * Abnormal HB and thalassemia Invest. 1-HB electropheresis (interpret) 2-Quantitation of HB F & A2 3- Sickling test		
<ul><li>8. Cytochemical staining techniques</li><li>9. Classification of leukemias (acute, chronic)- case study</li></ul>		

	<u> </u>	
10. Laboratory approach to the		
diagnosis and classification of blood		
diseases		
11. CASE PRESENTATION		
12. Laboratory practice, safety,		
assurance		
13. Recent techniques:		
<ol> <li>immunophenotyping techniques</li> </ol>		
<ol><li>cytogenetic techniques</li></ol>		
3. molecular techniques		
HEMOSTASIS		
1. Laboratory approach to the diagnosis		
and classification of bleeding tendency		
2. Screening tests of hemostasis		
3. platelet function tests		
4. coagulation factors & vWF assay		
5. Invest. Of thrombophilia		
Laboratory control of		
antithrombotictherapy		
BLOOD BANK		
1. ABO and RH – D Grouping		
2. Ab screening & identification		
(Coomb's Test: DAT & IAT)		
3. Cross matching		
4. diagnosis of transfusion reactions		
5. transfusion therapy techniques		
-Red cell wash		
- Separation of components		
*manual		
*automated		
b. Interpret the following non	Clinical	Procedure
invasive/invasive diagnostic procedures	round with	presentation
	senior staff	- Log book
-All tests mentioned in.C.D		
<ul> <li>immunophenotyping techniques</li> </ul>		

- cytogenetic techniques		
- molecular techniques		
- molecular techniques  D.Perform the following non invasive/invasive diagnostic procedures mentioned  1. SAMPLING & BLOOD HANDLING	Clinical round with senior staff -Perform under supervision of senior staff	Procedure presentation - Log book - Chick list
6) Hb electrophoresis		
7) Erythropoietin assay		
7- BLOOD PARASITES 8- CYTOCHEMICAL STAINING:		
Myeloperoxidase     Sudan black		
Sudan black     DAS		
• PAS		
• NAP		
Acid Phosphatase		
Esterase		

• Others	
9- BONE MARROW	
- Aspiration	
- Trephine Biopsy	
10- CASE PRESENTATION	
11-SCREENING TESTS OF HEMOSTASIS:	
- Bleeding time	
- PT& INR	
- PTT	
- Thrombin Time	
- Fibrinogen assay	
- FDP	
12- Coagulation factors	
- vWF ASSAY	
13- Platelet function tests	
14- Investigations of thrombophilia	
15- BLOOD BANKING	
1-ABO grouping	
2- RH typing	
3-Cross matching	
4- Coomb's test	
5- Ab screening &	
Identification	
6- Storage of blood	
16- BLOOD TRANSFUSION	
1- Red cell wash	
2- Separation of components	
- Manual - auomated	
E. Carry out patient management plans for	
common conditions related to hematology.	
F. Use information technology to support	
patient care decisions and patient education	
in common clinical situations related to	
hematology	

G.Provide health care services aimed at preventing health problems related to hematology like:	
H. Provide patient-focused care in common conditions related to hematology, while working with health care professionals, including those from other disciplines like	
I. Write competently all forms of reports related to the hematology, (lab reports).	

# **D- General Skills**

# **Practice-Based Learning and Improvement**

ILOs	Methods of	Methods of
1-03	teaching/	Evaluation
	learning	
A. Perform practice-based improvement	-Case log	Procedure/case
activities using a systematic methodology(audit,	-Observation	presentation
logbook)	and	-Log book and
	supervision	Portfolios
	-Written & oral	
	communication	
B. Appraises evidence from scientific	-Journal clubs	
studies(journal club)	- Discussions in	
	seminars and	
	clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data		
entry and analysis.		
E. Facilitate learning of junior students and	Clinical rounds	
other health care professionals.	Senior staff	
	experience	

## **Interpersonal and Communication Skills**

interpersonal and communication 3kms		
ILOs	Methods of	
	teaching/	Evaluation
	learning	
F. Maintain <b>diagnostic</b> and ethically sound	Simulations	Global rating
relationship with patients.	Clinical round	Procedure/case
	Seminars	presentation
	Lectures	Log book Portfolios
	Case	Chick list
	presentation	and
	Hand on	
	workshops	
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 common problems	Practical	practical Exam
related to hematology	round	
	Seminars	
K. Write a report in all tests mentioned in	Senior staff	Chick list
B.C	experience	
L. Council patients and families about	Clinical round	
conditioned in hematology	with senior	
	staff	

## Professionalism

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
M. Demonstrate respect, compassion, and	Observation	1. Objective
integrity; a responsiveness to the needs of	Senior staff	structured
patients and society	experience	clinical
	Case taking	examination
		2. Patient survey
N. Demonstrate a commitment to ethical		360o global
principles including provision or withholding of		rating
clinical care, confidentiality of patient		
information, informed consent, business practices		
O. Demonstrate sensitivity and responsiveness to		1. Objective
patients' culture, age, gender, and disabilities	structured	
	clinical	
	examination	
		2. 360o global
		rating

## **Systems-Based Practice**

Systems-based i faction		
ILOs	Methods of teaching/learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	Observation Senior staff experience	1. 360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		1. Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		1. 3600 global rating 2. Patient survey

# Course 5; Unit (Module 3) Immunology

# A-Knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Outline the details of the following: -Hypersensitivity Types -type I immediate hypersensitivity - type II antibody mediated hypersensitivity - type III immune complex mediated Hypersensitivity - type IV cell mediated hypersensitivity Congenital Immunodeficiency Tumor Immunology Transplantation Immunology	Didactic; -Lectures -Practical rounds -Seminars -practical rotations (service teaching)	-OSCE at the end of each year -log book & portfolio - MCQ examination at the second year -Oral and written exam
B. Describe the etiology, clinical picture, and diagnosis of the following diseases and clinical conditions: -Hypersensitivity Types -type I immediate hypersensitivity - type II antibody mediated hypersensitivity - type III immune complex mediated Hypersensitivity - type IV cell mediated hypersensitivity Congenital Immunodeficiency Tumor Immunology Transplantation Immunology		
C. State update and evidence based Knowledge of conditioned mentioned in A &B  D. Memorize the facts and principles of the relevant		

basic and clinically supportive sciences related to	
Immunology	
E. Mention the basic ethical and medicolegal principles	
revenant to the immunology.	
F. Mention the basics of quality assurance to ensure good	
clinical care in Immunology	
G. Mention the ethical and scientific principles of medical	
research	
- H. State the impact of common health problems in the field	
of Immunology on the society.	

# **B-** Intellectual outcomes

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with clinical reasoning and diagnosis of common diseases related to Immunology.	Clinical rounds Senior staff experience	Procedure/case presentation Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to Immunology.	•	
C. Design and present cases , seminars in common problem of immunology		
D-Formulate management plans and alternative decisions in different situations in the field of the Immunology.		

# **C-Practical skills (Patient Care)**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Demonstrate an investigatory and analytic thinking approach to the following conditions: related to immunology mentioned in AA,AB	-Didactic; -Lectures -Clinical rounds -Seminars -Clinical rotations (service teaching)	OSCE at the end of each year -log book & portfolio - One MCQ examination at the second half of the second year and another one in the third year
B. Recommend the following non invasive diagnostic laboratory procedures - Screening test for hypersensitivity and detection of different allergens Tissue typing Phagocytic function.	Clinical round with senior staff Observation Post graduate teaching Hand on workshops	-Procedure presentation - Log book - Chick list
C. Interpret the following non invasive diagnostic laboratory procedures - Screening test for hypersensitivity and detection of different allergens Tissue typing Phagocytic function.	Clinical round with senior staff	Procedure presentation - Log book - Chick list

D. Perform the following non invasive diagnostic	Clinical round	Procedure
laboratory procedures	with senior	presentation
RIBA test	staff	- Log book
-Separation of lymphocytes	-Perform	- Chick list
- Counts of T cells	under	
- Counts of B cells	supervision of	
- Flowcytometry	senior staff	
-Qualitative PCR		
E. Carry out patient management plans for	Clinical round	
common conditions related to Immunology.	with senior	
	staff	
F. Use information technology to support patient		
care decisions and patient education in common		
clinical situations related to Immunology.		
G.Provide health care services aimed at		
preventing health problems related to		
Immunology like: conditioned mentioned in A.A.		
H-Provide patient-focused care in common		
conditions related to Immunology, while working		
with health care professionals, including those		
from other disciplines like:		
Conditions mentioned in B.A.		
I. Write competently all forms of reports related		
to the Immunology, (lab reports).		

### **D-General Skills**

# **Practice-Based Learning and Improvement**

ILOs	Methods of	Methods of
1203	teaching/	Evaluation
	learning	Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook)	-Case log -Observation and supervision	Procedure/case presentation -Log book and Portfolios
	-Written & oral communication	
B. Appraises evidence from scientific studies(journal club)	Journal clubs - Discussions in seminars and clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data entry and analysis.		
E. Facilitate learning of junior students and other health care professionals.	Clinical rounds Senior staff experience	

# **Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
F. Maintain <b>diagnostic</b> and ethically sound relationship with patients.	Simulations Clinical round Seminars Lectures Case presentation	Global rating Procedure/case presentation Log book Portfolios Chick list
<ul> <li>G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.</li> <li>H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.</li> <li>I. Work effectively with others as a member of a health care team or other professional group.</li> </ul>	Hand on workshops	
J. Present a case in common problems related to Immunology.	Clinical (practical)round Seminars	
<ul><li>K. Write a report in:</li><li>-All investigations in immunology.</li></ul>	Senior staff experience	Chick list
L. Council patients and families about: -Viral hepatitis -Transmission of hepatitis C and B - HIV	Clinical round with senior staff	

## **Professionalism**

ILOs	Methods of teaching/ learning	Methods of Evaluation
M. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society	Observation Senior staff experience Case taking	1. Objective structured clinical examination 2. Patient survey
N. Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices		1. 360o global rating

# **Systems-Based Practice**

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery settings and systems.	Observation Senior staff experience	360o global rating
Q. Practice cost-effective health care and resource allocation that does not compromise quality of care.		Check list evaluation of live or recorded performance
R. Assist patients in dealing with system complexities.		- 360o global rating - Patient survey

# Course 5; Unit (Module 4) Microbiology

# A-Knowledge and understanding

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Illustrate the detailed of the following: -Pyrexia of unknown originSepticemia and bacteremia -upper and lower respiratory tract infections, Ear and eye infection -GIT infections -Genitourinary tract infection -Sexually transmitted diseases - Nosocomial infection and infection control	-Lectures -Laboratory work, tutorial, journal club, case presentation, Conference,	-Written, oral and practical examination - Log book
B. Describe the etiology, clinical picture, and diagnosis of the following diseases and clinical conditions associated with: -Pyrexia of unknown originSepticemia and bacteremia -Upper and lower respiratory.tract infections, Ear and eye infection -GIT infections -Genitourinary tract infection -Sexually transmitted diseases - Nosocomial infection and infection control		
C. State update and evidence based Knowledge of conditioned mentioned in A &B		
D. Memorize the facts and principles of the relevant basic and clinically supportive sciences related to Microbiology  E. Mention the basic ethical and medicolegal principles revenant to the microbiology		
F. Mention the basics of quality assurance to ensure good clinical care in microbiology		

## **B-** Intellectual outcomes

ILOs	Methods of teaching/	Methods of Evaluation
	learning	Lvaluation
A. Correlates the facts of basic bacteriology with clinical reasoning and diagnosis of common diseases related to microbiology.	Didactic (lectures, seminars, tutorial)	-Written, oral and practical examination
<b>B. Demonstrate</b> an investigatory and analytic thinking (problem solving) approaches to common clinical situations related to microbiology.		
C. <b>Design and present</b> cases , seminars in common problem in microbiology		
D-Formulate management plans and alternative decisions in different situations in the field of the microbiology		

#### **C-** Practical skills (Patient Care)

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Demonstrate an investigatory and analytic thinking approach to the following conditions: related to microbiology mentioned in AA,AB  B. Recommend the following non invasive diagnostic procedures  1.Sampling and Specimens collection: Blood, Urine, Pus, Sputum, Stool and biological fluid Techniques  - Precautions  - Containers  2- Transportation and Processing of Specimens: Blood, Urine, Pus, Sputum, Stool and biological fluids  3-Staining procedures:  -Gram stain  -Ziehl-Neelsen stain  - Fluorescent stains  4-Media preparation  -Nutrient  -Blood  -Chocolate  -MacConkey  -Manitol- salt  -Eosin Methylene Blue  -CLED  5- culture of different specimens  -Blood  - CSF  -Wound	Clinical round with senior staff Observation Post graduate teaching Hand on workshops	Procedure presentation - Log book - Chick list

- Urine	
-Sputum	
-Stool	
- Biological fluid	
- Biological fidio	
6-Isolation and identification of aerobic	
organisms	
7- Culture of anaerobe	
-Techniques	
-Precautions	
- Container	
8- Antibiogram	
9-Tuberculosis:	
-Direct smear microscopy	
-Z-N preparation	
-Culture on LJ	
-Identification of strains	
-Interpretation	
-Drug susceptibility	
-New methods: PCR	
-Advanced Techniques :	
-PCR	
-PCR- RFLP	
- Automation in Microbiology :	
VITEK2	
BACT/ALERT	
C. Interpret the following non invasive	
diagnostic procedures mentioned in C.B	
D. Perform the following non invasive/invasive	
diagnostic procedures mentioned in C.B	
E. Carry out patient management plans for	
common conditions related to microbiology.	
F. Use information technology to support	
patient care decisions and patient education in	
common clinical situations related to	

microbiology
G. Provide health care services aimed at
preventing health problems related to
infectious diseases
H. Provide patient-focused care in common
conditions related to microbiology, while
working with health care professionals,
including those from other disciplines
I. Write competently all forms of reports
related to the microbiology, (lab reports).

# D- General Skills Practice-Based Learning and Improvement

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
A. Perform practice-based improvement	-Case log	Procedure/case
activities using a systematic methodology(audit,	-Observation	presentation
logbook)	and	-Log book and
	supervision	Portfolio
	-Written & oral	
	communication	
B. Appraises evidence from scientific	-Journal clubs	
studies(journal club)	- Discussions in	
	seminars and	
	clinical rounds	
C. Conduct epidemiological Studies and surveys.		
D. Perform data management including data		
entry and analysis.		
E. Facilitate learning of junior students and	Clinical rounds	
other health care professionals.	Senior staff	
	experience	

#### **Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation			
F. Maintain diagnostic and ethically sound relationship with patients.	Simulations Clinical round Seminars Lectures Case presentation Hand on workshops	Global rating Procedure/case presentation Log book Portfolios Chick list and			
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 Microbiology	Practical round Seminars	practical Exam			
K. Write a report in all investigations mentioned in C.B.	Senior staff experience				
L. Council patients and families about conditioned mentioned in B.A.	Clinical round with senior staff				

#### Professionalism

ILOs	Methods of	Methods of
	teaching/	Evaluation
	learning	
M. Demonstrate respect, compassion, and integrity;	Observation	1. Objective
a responsiveness to the needs of patients and society	Senior staff	structured
	experience	clinical
	Case taking	examination
		2. Patient
		survey
N. Demonstrate a commitment to ethical principles		1. 360o
including provision or withholding of clinical care,		global
confidentiality of patient information, informed		rating
consent, business practices		
O. Demonstrate sensitivity and responsiveness to		1. Objective
patients' culture, age, gender, and disabilities		structured
		clinical
		examination
		2. 360o
		global
		rating

#### **Systems-Based Practice**

ILOs	Methods of teaching/ learning	Methods of Evaluation
P. Work effectively in relevant health care delivery	Observation	360o global
settings and systems.	Senior staff	rating
	experience	
Q. Practice cost-effective health care and resource		Check list
allocation that does not compromise quality of care.		evaluation
		of live or
		recorded
		performance
R. Assist patients in dealing with system		- 360o global
complexities.		rating
		- Patient
		survey

# 4. Course contents (topics/modules/rotation Course Matrix

**Time Schedule: Second part** 

Topic	Covered ILOs							
	Knowledge	Intellectual	Practical skill	General Skills				
Unit (	Unit (Module 1) Clinical Chemistry							
Carbohydrates	А-Н	A-D	A-I	A-R				
Lipid chemistry	A-H	A-D	A-I	A-R				
Amino acids and plasma proteins	А-Н	A-D	A-I	A-R				
Renal functions and non protein nitrogenous compounds	А-Н	A-D	A-I	A-R				
Physiology and disorders of water, electrolytes and acid base metabolism	А-Н	A-D	A-I	A-R				
Enzymes	А-Н	A-D	A-I	A-R				
Liver	А-Н	A-D	A-I	A-R				
Cardiac markers	А-Н	A-D	A-I	A-R				
Mineral and bone metabolism	А-Н	A-D	A-I	A-R				
Gastric, pancreatic and intestinal functions	А-Н	A-D	A-I	A-R				
Endocrinology	А-Н	A-D	A-I	A-R				
Errors of amino, organic and fatty acids metabolism	А-Н	A-D	A-I	A-R				
Pregnancy	А-Н	A-D	A-I	A-R				

Vitamins and trace elements	А-Н	A-D	A-I	A-R	
Body fluid analysis	А-Н	A-D	A-I	A-R	
Analytes of hemoglobin metabolism and porphyrins	А-Н	A-D	A-I	A-R	
Clinical chemistry of the geriatrics and pediatrics	A-H	A-D	A-I	A-R P-R	
Tumor markers	А-Н	A-D	A-I	A-R	
Unit	t (Module 2)	 Hematology			
Normal hematologic system	A-H	A-D		A-C	
Disorders of red cells	А-Н	A-D	A-I	A-R	
Non malignant disorders of leukocytes and the spleen	А-Н	A-D	A-I	A-R	
Hematologic malignancies	А-Н	A-D	A-I	A-R	
Disorders of haemostasis	A-H	A-D	A-I	A-R	
Transfusion medicine	A-H	A-D	A-I	A-R	
Laboratory hematology and diagnostic approach to	А-Н	A-D	A-I	A-R	
Miscellaneous	А-Н	A-D	A-I	A-R	
Unit	(Module 3)	Immunology			
Clinical transplantation	A	A		A-C	
Immune response to viral infection	A	A		A-C	
Congenital immunodeficiency diseases	A	A		A-C	
Tumor immunology	A	A		A-C	
Unit (Module 4) Microbiology					

Laboratory strategy in diagnosis of bacterial infections	А-Н	A-D	A-I	A-K P-R
Gram positive cocci	А-Н	A-D	A-I	A-K P-R
Gram negative cocci	А-Н	A-D	A-I	A-K P-R
Gram positive rods	А-Н	A-D	A-I	A-K P-R
Gram negative rods	А-Н	A-D	A-I	A-K P-R
Spirochaetes	А-Н	A-D	A-I	A-K P-R
Poorly gram staining organisms	A-H	A-D	A-I	A-K P-R
Technologic advances in clinical microbiology	А-Н	A-D	A-I	A-K P-R
Sterilization techniques	А-Н	A-D	A-I	A-K P-R
Nosocomial infection	А-Н	A-D	A-I	A-K P-R

#### **5. Course Methods of teaching/learning:**

- 1-Didactic: Lectures.
- 2-Seminars.
- 3-Service teaching.
- 4-Post graduate teaching
- 5-hand on work shops
- 6-Case presentation
- 7-Simulations

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

- 1-Didactic: Lectures.
- 2-Seminars.
- 3-Service teaching.
- 4-Post graduate teaching
- 5-hand on work shops
- 6-Case presentation
- 7-Simulations

#### 7. Course assessment methods:

- i. Assessment tools:
- Clinical examination
- Written and oral examination
- Chick list
- ➤ log book & portfolio
- Procedure/case presentation
- MCQ examination
- Objective structured clinical examination
- Check list evaluation of live or recorded performance
- Patient survey
- ➤ 360o global rating
- ii. Time schedule: at end of second part
- iii. Marks: 1200 marks

Written exam 500 marks,

Oral exam 200 marks,

Clinical &practical exam 480 mark

#### 8. List of references

#### i. Lectures notes

Staff members print out of lectures and/or CD copie

#### ii. Essential books

- 1- Tietz textbook of clinical chemistry and molecular diagnostics, the fourth edition.
  - 2- Tietz Fundamentals of clinical chemistry.

#### Edition...fourth

- 3-- Postgraduate Haematology.
- 4- Atlas of hematology
- 5- Practical hematology "Dacie and Lewis
- 6-- Basic immunology
- 7- Basic and clinical immunology
- 8- Jawetz medical microbiology

#### iii. Recommended books

- 1- Clinical chemistry (Bishop).
- 2- Zilva Clinical chemistry and metabolic medicine.
- 3- Marshall Clinical chemistry.
- 4- Wintrobe ☐s clinical hematology.
- 5- Williams Hematology
- 6- Medical immunology
- 7- Diagnostic Microbiology (Koneman

#### iv. Periodicals, Web sites, ... etc

- Journal of Clinical Chemistry
- Molecular and cellular endocrinology
- Atherosclerosis
- American journal of hematology
- Journal of hematology oncology
- Journal of thrombosis and hemostasis
- Blood
- Hematologica
- Egyptian journal of immunology

- The journal of immunology
- Journal of clinical immunology
- Journal of Clinical Microbiology
- Clinical Microbiology reviews
- Journal of Bacteriology

v. Others: None

9. Signatures		
Course Coordinator: Prof. Dr Lubna Tag.	Head of the Department: Prof Dr Azza Mahmoud Ezz EL Dir	
Date:	Date:	

# ANNEX 2 Program Academic Reference Standards (ARS)

1- Graduate attributes for master degree in Clinical pathology

### 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 clinical audit *in Clinical pathology*.
- **2-** Appraise and utilise scientific knowledge to continuously update and improve clinical practice in related speciality.
- **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 *Clinical pathology*.
- **4-** Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and updated information.
- 5- Identify and share to solve health problems in his speciality.
- **6-** Acquire all competencies \_including the use of recent technologies- that enable him to provide safe, scientific, and ethical and evidence based clinical care including update use of new technology in *Clinical pathology*.
- **7-** Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients

- and their families and teamwork with other health professions, the scientific community 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 **Clinical pathology.**
- **10-** Show responsiveness to the larger context of the 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 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 *Clinical pathology* or one of its subspecialties.

## 2- - Competency based Standards for clinical master degree graduates in clinical pathology

#### 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 conditions, problem and topics.
- **2-1-B-** The relation between good clinical care of common health problems in the speciality and the welfare of society.
- **2-1-C-** Up to date and recent developments in common problems related to *Clinical pathology*
- **2-1-D-** Ethical and medicolegal principles relevant to practice in *Clinical pathology*
- **2-1-E** -Quality assurance principles related to the good medical practice in *Clinical pathology*
- **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 diseases of *Clinical pathology*.
- **2-2-B-** Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to *Clinical pathology*.
- **2.2- C-** Demonstrating systematic approach in studying clinical problems relevant to *Clinical pathology*.
- **2-2-D-** Making alternative decisions in different situations in *Clinical pathology*.

#### 2.3- Clinical skills

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

- **2-3-A** Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
- **2-3-B-** Demonstrate patient care skills relevant to *Clinical pathology* for patients with common diseases and problems.

**2-3- C**- Write and evaluate reports for situations related to the field of *Clinical pathology*.

#### 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 patient care, appraisal and assimilation of scientific evidence,, improvements in patient care 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, 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 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

	Patien t care	Medical knowledg e	Practice- based learning/ Improveme nt	Interpersonal and communicatio n skills	Professionalis m	Systems- based practice
Didactic (lectures, seminars, tutorial)	X	X		X	X	X
journal club,	Х	Х	Х			
Educational prescription	Х	Х	Х	X	X	Х
Present a case (true or simulated) in a grand round		X	X	X	X	
Observation and supervision	Х		Х	Х	Х	Х
conferences		Х	Х	Х		Х
Written assignments	X	Х	X	Х	X	Х
Oral assignments	Х	Х	X	Х	X	Х

#### 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	Practica I skills		Intellectu al	etnods for Mas	General		
	Patient care	K	I	Practice- based learning/ Improveme nt	Interperson al and communica tion skills	lism	Systems -based practice
Record review	X	X	Х		X	X	Х
Checklist	Х				Х		
Global rating	Х	Χ	X	Х	Х	Х	Х
Simulations	Х	Х	Х	Х	Х	Х	
Portfolios	Х	X	Х	Х	Х		
Standardized oral examination	X	X	Х	Х	Х		Х
Written examination	Х	Х	Х	Х			Х
Procedure/ case log	X	X					
OSCE	X	Х	Х	Х	Х	Х	Х

#### <u>Annex 4, Glossary of Master Degree doctors assessment</u> 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 decisionmaking.
  - ❖ 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.
  - ❖ Procedure or Case Logs MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.
  - PSQs Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by a 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.
- Procedure or Case Logs MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.
- PSQs-Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by MSc doctors.

# Annex 5, program evaluation tools

By whom	Method	Sample
Quality Assurance Unit	Reports	#
	Field visits	
External Evaluator	Reports	#
(s):According to	Field visits	
department council		
External Examiner (s):		
According to department		
council		
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 الباثولوجيا الاكلينيكية

#### الاكلينيكية 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 clinical audit in Clinical pathology	1- إجادة تطبيق أساسيات و منهجيات المختلفة البحث العلمي واستخدام أدواته المختلفة
2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in Clinical pathology	2-تطبيق المنهج التحليلي و استخدامه 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 Clinical pathology.	3-تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
4- Provide patient care that is appropriate, effective and compassionate for dealing with common health problems and health promotion using evidence-based and update information.	4-إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
5- Identify and share to solve health problems in <i>Clinical pathology</i>	5-تحديد المشكلات المهنية و ايجاد حلو لا لها
6- Acquire all competencies that enable him to provide safe, scientific, ethical and evidence based clinical care including update use of new technology	6-إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته

in <i>Clinical pathology.</i>	المهنية
<ul> <li>7- Demonstrate interpersonal and communication skills that ensure effective information exchange with individual patients and their families and teamwork with other health professions, the scientific community and the public.</li> <li>8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.</li> </ul>	7-التواصل بفاعلية و القدرة على قيادة فرق العمل
9- Acquire decision making capabilities in different situations related to <i>Clinical pathology</i>	8-اتخاذ القرار في سياقات مهنية مختلفة
10- Show responsiveness to the larger context of the 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.	9- 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 health care.	10-إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية
12- Show appropriate attitudes and professionalism.	11-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 <i>Clinical pathology</i> or one of its subspecialties.	12 - تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر

#### 2. Academic standard

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.1.A -Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problems and topics.	2-1-أ-النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة.
2.1.B- The relation between good clinical care of common health problems in <i>Clinical pathology</i> 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 <i>Clinical pathology</i> .	2-1-ج-التطورات العلمية في مجال التخصص.
2.1. D- Ethical and medicolegal principles relevant to practice in the <i>Clinical pathology</i> .	2-1-د-المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.
2.1. E-Quality assurance principles related to the good medical practice in <i>Clinical pathology</i>	1-2-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
<ul> <li>2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of Clinical pathology</li> <li>2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to Clinical pathology.</li> </ul>	2-2-أ- تحليل و تقييم المعلومات في مجال التخصص و القياس عليها لحل المشاكل

<ul> <li>2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to <i>Clinical pathology</i>.</li> <li>2.2. A-Correlation of different relevant sciences in the problem solving and management of common diseases of <i>Clinical pathology</i>.</li> </ul>	2-2-ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات المعطيات 2-2-ج- الربطبين المعارف المختلفة لحل المشاكل المهنية
2.2. C- Demonstrating systematic approach in studying clinical problems relevant to the <i>Clinical pathology</i> .	2-2-د- إجراء در اسة بحثية و /أو كتابة در اسة علمية منهجية حول مشكلة بحثي
2.4.A-Demonstrate practice-based learning and Improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-2هـــ تقييم المخاطر في الممارسات المهنية في مجال التخصيص
2.4.A-Demonstrate practice-based learning and Improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific improvements in evidence, patient care and risk management	2-2-ى - التخطيط لتطوير الأداء في مجال التخصيص
2.2.D- Making alternative decisions in different situations in the field of <i>Clinical pathology</i> .	2-2-ز - اتخاذ القرارات المهنية في سياقات مهنية متنوعة
2.3.A- provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.  2.3.B- Demonstrate patient care skills	2-3-أ- إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص

relevant to <i>Clinical pathology</i> for patients with common diseases and problems.	
2.3.C- Write and evaluate reports for Situation related to <i>Clinical pathology</i> .	2-3-ب- كتابة و تقييم التقارير المهنية
<ul> <li>2.3.A- provido patient care that compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.</li> <li>2.3.B- Demonstrate patient care skills relevant to that speciality for patients with common diseases and problems.</li> </ul>	2-3-ج- تقييم الطرق و الأدوات القائمة في مجال التخصص
2.4.D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.	2-4-أ التواصل الفعال بأنواعه المختلفة
2.4.A-Demonstrate practice-based learning and improvement skills that investigation and involves evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management 2.4.B- Use all information sources and technology to improve his practice.	2-4-ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
2.4.A-Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	2-4-ج- التقييم الذاتي وتحديد احتياجاته التعلمية الشخصية

2.4.5.11 11: 6 .: .	
2.4.B- Use all information sources and	
technology to improve his practice.	
2.4.E-Demonstrate professionalism	
behavior, as manifested through a	
commitment to carrying out	
professional responsibilities,	
adherence to ethical principles, and	
sensitivity to a diverse patient	
population.	
2.4.A-Demonstrate practice-based	2-4-د- استخدام المصادر المختلفة للحصول
learning and improvement skills that	على المعلومات و المعارف
involves investigation and evaluation	على المعلومات و المعارف
of their own patient care, appraisal	
and assimilation of scientific	
evidence, , improvements in patient	
care and risk management.	
2.4. C- Demonstrate skills of teaching and	2-4-هــ- وضع قواعد ومؤشرات تقييم أداء
evaluating others.	
	الآخرين
2.4. F- Demonstrate an awareness of	2-4-ي - العمل في فريق ، وقيادة فرق في
and responsiveness to the larger	سياقات مهنية مختلفة
context and system of health	سیافات مهیبه
care and the ability to	
effectively use system	
resources to provide care that	
is of optimal value.	
2.4.G- Demonstrate skills of effective time	2-4-ز - إدارة الوقت بكفاءة
management.	
2.4.H- Demonstrate skills of self and	2-4-ح- التعلم الذاتي و المستمر
continuous learning.	ر بر الله الله الله الله الله الله الله الل

# Comparison between ARS and ILOS for master degree in Clinical pathology.

(ARS)	(ILOs)
2-1-A- Established basic, biomedical, clinical, epidemiological and behavioral sciences related conditions, problem and topics.	<ul> <li>2-1- Knowledge and understanding</li> <li>2-1-A- Explain the essential facts and principles of relevant basic sciences including, basic microbiology and clinical parasitology related to clinical pathology.</li> <li>2-1-B- Mention essential facts of clinically supportive sciences including basic microbiology and clinical parasitology related to clinical pathology.</li> <li>2-1-C- Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention</li> </ul>
	and treatment of the common diseases and situations related to <i>Clinical pathology</i>
<b>2-1-B</b> The relation between good clinical care of common health problem in <i>Clinical pathology</i> and the welfare of society.	<b>2-1-H-</b> State the impact of common health problems in <i>Clinical pathology</i> on the society and how good clinical practice improve these problems.
<b>2-1-C-</b> Up to date and recent developments in common Problems related to <i>Clinical pathology</i> .	<b>2-1-C-</b> Demonstrate sufficient knowledge of etiology, clinical picture, diagnosis, prevention and treatment of the common diseases and situations related to <i>Clinical pathology</i>

<b>2-1-D-</b> Ethical and medico legal Principles relevant to practice in <i>Clinical pathology</i>	2-1-D- Give the recent and update developments in the pathogenesis, diagnosis, prevention and treatment of common diseases related to Clinical pathology.  2-1-E- Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to Clinical
<b>2-1-E</b> -Quality assurance principles related to the good medical practice in <i>Clinical pathology</i>	pathology <b>2-1-F-</b> Mention the basics and standards of quality assurance to ensure good clinical practice in Clinical pathology
<b>2-1-F-</b> Ethical and scientific basics of medical research.	<b>2-1-G-</b> Mention the ethical and scientific principles of medical research methodology.
<u>2-2- Intellectual skills</u> :	2-2- Intellectual skills:
<b>2-2-A-</b> Correlation of different relevant sciences in the problem solving and management of common diseases of the <i>Clinical pathology</i> .	<b>2-2-A-</b> Correlate the facts of relevant basic and clinically supportive sciences with clinical reasoning, diagnosis and management of common diseases of the <i>Clinical pathology</i> .
<b>2-2-B-</b> Problem solving skills based on data analysis and evaluation (even in the absence of some) for common clinical situations related to <i>Clinical pathology</i> .	<b>2-2-B-</b> Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical situations related to <i>Clinical pathology</i> .
<b>2-2-C-</b> Demonstrating systematic approach in studying clinical	<b>2-2-C-</b> Design and /or present a case or review (through seminars/journal

problems relevant to the Clinical pathology field.	clubs.) in one or more of common clinical problems relevant to the <i>Clinical pathology</i> field.
<b>2-2-D</b> Making alternative decisions in different situations in the field of the <i>Clinical pathology</i> .	<b>2-2-D-</b> Formulate management plans and alternative decisions in different situations in the field of the <i>Clinical pathology</i> .

continuous	Continuous
(ARS)	(ILOs)
<u>2-3- Clinical skills:</u>	2/3/1/Practical skills (Patient Care :)
<b>2-3-A-</b> Provide patient care that is compassionate, appropriate, and effective for the	<b>2-3-1-A-</b> Obtain proper history and examine patients in caring and respectful behaviors.
treatment of health problems and the promotion of health. <b>2-3-B-</b> Demonstrate patient care skills relevant to that <i>Clinical pathology</i> for patients with	<b>2-3-1-B-</b> Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment for common conditions related to <i>Clinical pathology</i> .
common diseases and problems.	<b>2-3-1-C-</b> Carry out patient management plans for common conditions related to <i>Clinical pathology</i> .
	<b>2-3-1-D-</b> Use information technology to support patient care decisions and patient education in common clinical situations related to <i>Clinical pathology</i> .
	<b>2-3-1-E-</b> Perform competently non invasive and invasive procedures considered essential for the <i>Clinical pathology</i> .
	<b>2-3-1-F-</b> Provide health care services aimed at preventing health problems related to <i>Clinical pathology</i> .
	<b>2-3-1-G-</b> Provide patient-focused care in common conditions related to <i>Clinical pathology</i> , while working with health care professionals, including those from other disciplines.
<b>2-3-C-</b> Write and evaluate reports for situations related to the field of <i>Clinical</i>	-3-1-H Write competently all forms of professional reports related to the

nathology	Clinical mathelagy /lab managets
pathology.	Clinical pathology (lab reports,
	experiments reports,).
2-4- General skills	2/3/2 General skills
2-4-A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, improvements in patient care and risk management	<ul> <li>2-3-2-A- Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).</li> <li>2-3-2-B- Appraises evidence from scientific studies.</li> <li>2-3-2-C- Conduct epidemiological studies and surveys.</li> </ul>
<b>2-4-B-</b> Use all information sources and technology to improve his practice.	2-3-2-C- Conduct epidemiological studies and surveys.  2-3-2-D.Perform data management including data
	entry and analysis and using information technology to manage information, access online medical information; and support their own education.
<b>2-4-C-</b> Demonstrate skills of teaching and evaluating others.	<b>2-3-2-E-</b> Facilitate learning of students other health care professionals including their evaluation and assessment.
<b>2-4-D-</b> Demonstrate interpersonal and communication skills that result in effective information	<b>2-3-2-F-</b> Maintain therapeutic and ethically sound relationship with patients.
exchange and teaming with patients, their families, and other health professionals.	<b>2-3-2-G-</b> Elicit information using effective nonverbal, explanatory, questioning, and writing skills.
	<b>2-3-2-H-</b> Provide information using effective nonverbal, explanatory, questioning, and writing skills.
	2-3-2-I- Work effectively with others as a

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

# III-Program matrix Knowledge and Understanding

Course	Program covered ILOs								
	2/1/	2/1/	2/1/	2/1/	2/1/				
	Α	В	С	D	E	F	G	Н	
Course 1 : Clinical Parasitology.	✓	٧							
Course 2 : Principles of General and Clinical Microbiology	<b>✓</b>	<b>√</b>	<b>√</b>	<b>✓</b>	✓	<b>✓</b>	<b>✓</b>	<b>✓</b>	
Course3:Principles of General and Clinical immunology	<b>√</b>	<b>√</b>	✓	<b>√</b>	✓	✓	<b>√</b>	<b>√</b>	
Course 4 Internal medicine	<b>√</b>	<b>√</b>							
Course 5 Clinical pathology	<b>√</b>	<b>√</b>	√	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	

#### Intellectual

Course	Program covered ILOs							
Course	2/2/A	2/2/B	2/2/C	2/2/D				
Course 1 : Clinical Parasitology.	<b>√</b>							
Course 2 : Principles of General and Clinical Microbiology	<b>✓</b>		<b>√</b>	<b>√</b>				
Course3:Principles of General and Clinical immunology	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>				
Course 4 Internal medicine	<b>√</b>							
Course 5 Clinical pathology	✓	✓	✓	✓				

#### **Practical Skills (Patient Care)**

Course			F	rogram co	overed ILC	S		
Course	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:								
Clinical		٧		√				
Parasitology.								
Course 2:								
Principles of								
<b>General and</b>	✓	✓	✓	✓	✓	✓	✓	✓
Clinical								
Microbiology								
Course3:Principles								
of General and	<b>✓</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	./	<b>✓</b>	<b>√</b>
Clinical	•	•	•	•	•	•	•	¥
immunology								
Course 4 Internal	<b>✓</b>	٧		٧				
medicine	•							
Course 5 Clinical pathology	✓	✓	✓	✓	✓	✓	✓	✓

#### **General Skills**

			F	Program co	overed ILO	)s		
Course	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 : Clinical Parasitology.	٧			<b>√</b>			٧	<b>~</b>
Course 2 : Principles of General and Clinical Microbiology	✓	✓	✓	✓	✓	<b>√</b>	✓	<b>√</b>
Course3:Princ iples of General and Clinical immunology	<b>√</b>	✓	✓	✓	<b>√</b>	<b>√</b>	✓	<b>√</b>
Course 4 Internal medicine	٧			<b>√</b>		٧	٧	<b>√</b>
Course 5 Clinical pathology	✓	✓	✓	✓	✓	✓	✓	✓

#### **General Skills (cont.)**

Course	Program covered ILOs								
<b>30 </b>	2/3/2/1	2/3/2/J	2/3/2/K	2/3/2/L	2/3/2/M	2/3/2/N	2/3/2/0		
Course 1 : Clinical Parasitology.									
Course 2 : Principles of General and Clinical Microbiology	<b>~</b>	✓	✓	✓	✓	✓	<b>~</b>		
Course3:Principles of General and Clinical immunology	<b>✓</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>	<b>√</b>		
Course 4 Internal medicine		٧	٧		٧				
Course 5 Clinical pathology	✓	✓	✓	✓	✓	✓	✓		

# Annex 7, Additional information:

- Example:
- Department information:
- Staff members:
- Opportunities within the department:
- Department quality control insurance for completing the program:

(End of the program specifications)