Clinical Pathology
Department
Faculty of Medicine

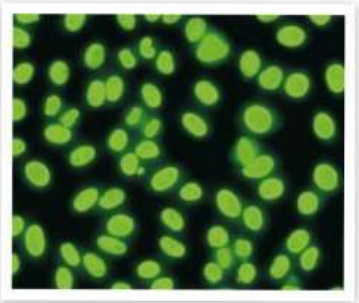
Medical Doctorate (M.D.) Degree of Clinical Pathology Logbook

(Clinical Chemistry Subspecialty)

For

Candidates of Medical Doctorate (M.D.) Degree of of Clinical Pathology

2022-2023

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Personal Data :-

Name……
Date of birth……..
Address……..
Place of work……
Telephones………**Mobile phone(s)**…….
E mail……

Name of hospital	Period of work	**Hospital director signature**

Academic Information

MBBCh……/……/…… ……..University
Grade ……MSc… ……..University
Grade ……
Grade of Internal Medicine course on graduation ……..
Others……/……/…… ……..University
……/……/…… ……..University

* Aim of the activities book

To provide one source of evidence for the assessment committee that you attained the desired level of competency required to gain the award.

In this book you will document all clinical, academic and other experiences and skills you attained during your training.

Sections of the book

For each module / course / rotation

You should fill the following sections:-

1- Laboratory skills log

1-You will find a list for required laboratory skills and level of desired performance you should achieve at the end of training.

2- You should record all laboratory skills in the module and should be signed by you trainer.

3- Procedures laboratory skills log

1- You will find a list for required procedure, laboratory skills and level of desired performance you should achieve at the end of training.

2- You will find empty tables to write down the procedure, you level of participation and date and signature of supervisor.

4- Rotation / attendance proof

You should have evidence of achievement the required training hours within each module.

For the whole program fill the following sections

1- Academic activities

A- Document all academic activities e.g. lecture, journal clubs, workshops, conference, services attended. This documentation should include the level of participation " attendance, preparation, presentation,……"

2- Academic achievements

A- Document all outcomes you achieved in the field of:-
- Audit participation
- Research "clinical trial" participation.
- Evidence- based medicine "generation of guidelines" protocols

3- Formative assessment log

This document all types of formative assessment attended e.g.:-
- Mini clinical examination
- Quieses

1- Program aims

1 **1- Program aims**

I/1. To enable candidates to keep with international standards of patients care by mastering high level of clinical laboratory skills, in addition to update medical knowledge as well as clinical experience and competence in the area of clinical pathology, and enabling the candidates of diagnosing diseases.

1/2. Provide candidate with fundamental knowledge of interpretation of diagnostic tests ,information about tests and diseases has been extensively updated including newer technologies that have markedly improved our accuracy and diagnostic ability**.**

1/3 To enable candidates to perform high standard scientific medical research and how to proceed with publication in indexed medical journals.

1/4. **To Enable them to have professional careers as a consultant in Egypt.**
- Make them recognized as a consultant abroad.
- Enable them to continue self learning in subspecialties.
- Enable them to master different research methodology
and do their own.

5- Program Structure

Program Time Table

Duration of program up to 4 years (could be extended to 6 years) divided into

- **Part 1**

Program-related basic science courses
- Medical statistics.
- Research methodology.
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research.
- Cytogenetics.
-Molecular Biology.
- Instrumentation and Equipments.

Students are allowed to sit the exams of these courses after 6 months from applying to the M D degree.

- **Thesis and 2 published researches**
  For the M D thesis: MD thesis subject should be officially registered within 1 year from application to the MD degree,
  Discussion and acceptance of the thesis should not be set before 24 months from registering the M D subject;
  It could be discussed and accepted either before or after passing the second part of examination .

- **Part 2**

Program –related speciality courses and ILOs

Students are not allowed to sit the exams of these units before 4 years from applying to the MD degree.

- Hematology
- Clinical Chemistry
- Clinical Immunology.
- Clinical Microbiology

First Part

Basic science Courses

Course	Name of the course
Course 1	Medical Statistics
Course 2	Research methodology
Course 3	Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
Course 4	Cytogenetics
Course 5	Molecular Biology
Course 6	Instrumentation and Equipments

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Medical statistics

Requirements

- **Credit points: 1 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Practical	Percentage of Achieved points
Medical statistics	1 credit point	Pubic Health & Community Medicine			100%
	0.1		Introduction 1 hour	SPSS Introduction 2H	10%
	0.1		Tables and graphics 1 Hour	Data entry and cleaning of data 2H	10%
	0.1		Sampling 1 Hour	Transforming of variables 2H	10%
	0.1		Methodology of data collection 1 Hour	Descriptive statistics 2 H	10%
	0.1		Type of variables 1 Hour	Graphic presentation 2 H	10%
	0.1		Proportion test Chi-square test 1 Hour	Chi square and interpretation of results 2 H	10%
	0.1		Student T test Paired T test 1 Hour	Student, Paired and ANOVA tests 2H	10%
	0.1		ANOVA test 1 Hour	Correlation Regression 2 Hour	10%
	0.1		Non parametric tests 1 Hour	Multiple and logistic Regression 2 H	10%
	0.1		Discrimination analysis factor analysis 1 Hour	Non parametric tests 2 H	10%
			Revision 1 H	Revision 2H	
Student signature			Principle coordinator signature		Head of the department signature

Medical Statistics

Lectures and tutorials

Date	Attendance	Topic	Signature

Research Methodology

Requirements

- **Credit points: 1 credit point**
- Minimal rate of attendance 80%

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Research Methodology	1 credit point	Pubic Health & Community Medicine		100%
	0.15		4 hours Introduction & proposal writing	15%
	0.15		4 hours Epidemiological study designs	15%
	0.15		4 hours Screening & theoretical background	15%
	0.24		6 hours Screening practical	24%
	0.15		4 hours Sample size calculation	15%
	0.08		2 hours Research bias	8%
	0.08		2 hours Ethics in research	8%
	-		2 hours Revision	-
Student signature			**Principle coordinator signature**	**Head of the department signature**

Research Methodology

Lectures and tutorials

Date	Attendance	Topic	Signature

Course 3

Medicolegal Aspects and Ethics in Medical Practice and Scientific Research

Requirements

- **Credit points: 1 credit point**
- Minimal rate of attendance 80%

One Credit point for Medicolegal Aspects and Ethics in Medical Practice and Scientific Lectures and tutorials

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Medicolegal Aspects and Ethics in Medical Practice and Scientific Research	1 credit point	Forensic Medicine and Clinical Toxicology	10 hours	100%
	0.5		5 hours Ethics in research	50%
	0.5		5 hours Medical ethics in practice.	50%
Student signature			Principle coordinator signature	Head of the department signature

Medicolegal Aspects and Ethics in Medical Practice and Scientific

Lectures and tutorials

Date	Attendance	Topic	Signature

Course 4
Cytogenetics

Requirements

- **Credit points: 2 credit points for didactics.**
- Minimal rate of attendance 80%

2.0 Credit Points for Cytogenetics Lectures and tutorials

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Cytogenetics	2.CP	**Clinical pathology**	20 hours	100%
	0.2CP		(2hours) -Outline the principles of the following: cell cycle ,the processes of mitosis and meiosis, the stages of these processes and where common abnormalities can occur.	10%
	0.1CP		(1 hours) -Method for obtaining chromosome preparations from a blood sample.	5%
	0.4CP		(4 hours) -Numerical chromosome abnormalities; Origin of aneuploidy; Mosaicism; Chimaeras; Origin and consequences of structural abnormalities: translocations, inversions, insertions, deletions, rings, markers; Risk assessment for balanced abnormalities; X inactivation, numerical and structural abnormalities of the X and the Y; Mechanism of formation of chromosome abnormalities.	20%
Student signature			Principle coordinator signature	Head of the department signature

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Cytogenetics	0.3CP	**Clinical pathology**	(3hours) -banding cytogenetic. - (Nomenclature) karyotypes description.	15%
	0.2CP		(2 hours) -Major dysmorphic features related to common chromosome aneuploidies.	10%
	0.3CP		(3 hours) -Fluorescence (FISH), the technical considerations for FISH, and the main service applications of FISH in cytogenetics & identification of FISH probe types appropriate to specific diagnostic situations and interpret FISH results.	15%
	0.3CP		(3 hours) New methods in cytogenetics.	15%
	0.2CP		(2hours) Chromosomal abnormalities related diseases.	10%
Student signature			Principle coordinator signature	Head of the department signature

2.0 Credit Points for Cytogenetics Lectures and tutorials

Date	Attendance	Topic	Signature

Course 5
Molecular Biology

Requirements

- **Credit points: 2 credit point; 1.5CP for didactic teaching and 0.5CP for training.**
- Minimal rate of attendance 80% of didactics and training.

1.5CP for didactic teaching (lectures and tutorials)

Name of the course	Credit points	Responsible department	Attendance	Percentage of achieved points
Molecular Biology	**(1.5)**	**Clinical pathology**	**(15 hours)**	100%
	0.1		(1hours) Structure and function of nucleic acid.	6.66%
	0.2		(2 hours) Basic processes involved in gene replication and repair	13.33%
	0.2		(2 hours) Gene expression	13.33%
	0.2		(2 hours) DNA recombination	13.33%
	0.3		(3 hours) **Biomolecular tools:** -Blotting. - Hybridization. -Transfection and Transformation. - Reporter gene assay.	20%
	0.3		(3 hours) **Biomolecular Techniques:** -PCR -Southern blotting. - Northern blotting. - Western blotting. - Gell shift assay. - DNA sequencing. - DNA foot printing.	20%
Student signature			**Principle coordinator signature**	**Head of the department signature**

Name of the course	Credit points	Responsible department	Attendance	Percentage of achieved points
Molecular Biology	**0.2CP**	**Clinical pathology**	(2hours) Importance of molecular biology techniques in laboratory diagnosis	13.33%
Student signature			**Principle coordinator Signature**	**Head of the department signature**

1.5CP for didactic teaching (lectures and tutorials)

Date	Attendance	Topic	Signature

0.5 Credit point for Molecular Biology Clinical training

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Molecular Biology	0.5CP	Clinical Pathology	**Molecular Biology**	100%
	0.1CP		*Attend and practice in PCR lab for at least **two hours /day -twice weekly for two week** including techniques log as mentioned below; *Perform in PCR lab and practice at least **2 times of each, level C, B&A of the following techniques-:** - DNA extraction - RNA extraction By chemical and automated extraction.	20%
	0.2CP		***** Attend and practice in PCR lab for 1h/day -twice weekly for two weeks including techniques log as mentioned below; -Perform PCR amplification of specific gene segments in PCR lab and practice at least 2 times for level C, **B&A.**	40%
	0.1CP		*Attend and practice in PCR lab for 1h/day -twice weekly for two weeks including techniques log as mentioned below; -Prepare agarose gel and perform and interpret of agarose electrophoresis of PCR Products and practice at least 2 times level C, B&A.	20%
	0.1CP		*Attend and practice in PCR lab for at least **one hour /day -twice weekly for two weeks** including techniques log as mentioned below; *Study the principal,	20%

			*Interpret and comment on the results of the following laboratory techniques at least 5 times for each: -Southern blotting. - Northern blotting. - Western blotting. - Gel shift assay. - DNA sequencing. - DNA foot printing.	
Student signature			Principle coordinator Signature	Head of the department signature

0.5 Credit Point for Molecular Biology Practical Training

Date	Attendance	Topic	Signature

*** Level of competency**

A- Independent performance
B- Performance under supervision
C- Observed.

Laboratory Skills in Molecular Biology laboratory

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Course 6

Instrumentation and Equipments

Requirements

- **Credit points: 3 credit point for didactics**
- Minimal rate of attendance 80%.

3 Credit Points for Instrumentation and Equipments Lectures and Tutorials

name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Instrumentation and Equipments	**3 CP**	**Clinical Pathology**	**30hours**	**100%**
	0.9CP		**(9 hours)** ***Optical Techniques: 1h for each;***	(30%)
	0.1		1-Nature of light.	3.33%
	0.1		2-Spectrophotometry.	3.33%
	0.1		3-Reflectance photometry.	3.33%
	0.1		4- Flame emission spectrophotometry	3.33%
	0.1		4- Flame emissio spectrophotometry.	3.33%
	0.1		6-Fluorometry.	3.33%
	0.1		7-Chemiluminesence, Bioluminesence and electro chemiluminescence.	3.33%
	0.1		8-Nephelometry and turbidimetry.	3.33%
	0.1		9- Microscopy.	3.33%
	0.3CP		**(3 hours)** **Electrophoresis**	10%
	0.3CP		**(3 hours)** **Chromatography**	10%
	0.5CP		**(5 hours)** **Principles of Immunochemical Techniques:** 1- Basic concept 2- Antibodies and Immunogen. 3-Antigen antibody binding forces. 4-Qualitative Methods: 5- Quantitative Methods: 6- Interference in Immunoassays. 7- Other immunochemical techniques	16.66%
Student signature			Principle coordinator signature	Head of the department signature

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Instrumentation and Equipments	**0.1CP**	**Clinical Pathology**	**(1 hour)** **Automation in the Clinical Laboratory:** 1-Processes used in automation. 2-Laboratory information System 3-Robotics. 4-Qualitative Methods: 5- Quantitative Methods: 6- Interference in Immunoassays. 7- Other immunochemical techniques.	3.33%
	0.1CP		**(1 hour)** **Automation in the Clinical Laboratory:** 1-Processes used in automation. 2-Laboratory information System 3-Robotics. 4- Types of automation**.**	3.33%
	0.1CP		(1 hour) processes. 5- Individual steps in analytical	3.33%
	0.1CP		(1 hour) 6-Integreated automation for the clinical laboratory. 7- Practical considerations.	3.33%
	0.1CP		**(1 hour)** **8-**Development of standard for automation	3.33%
	0.5CP		**(5 hours)** **9-Other areas of automation:** - Urine analyzers. - Flow cytometer. - Hematology cell counter. - Coagulometer.	16.66%
Student signature			**Principle coordinator signature**	**Head of the department signature**

name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Instrumentation and Equipments	**continued**	**Clinical Pathology**	**9-Other areas of automation** ***continued;*** Nucleic acid analyzers: - Microbiological analyzers - Microtiter plate systems. - Automated pipetting Stations. - POCT analyzers.	**continued**
Student signature			**Principle coordinator signature**	**Head of the department signature**

3.0 Credit Points for Instrumentation and Equipments Lectures and

Date	Attendance	Topic	Signature

Tutorial

COURSE	Signature
COURSE 1	
COURSE2	
COURSE 3	
COURSE 4	
COURSE 5	
COURSE 6	
Coordinators program	
Director of program	

يعتمد
رئيس القسم
أ.د/

Course 7 Clinical Pathology

It is divided into four modules; one of them will be chosen by the candidate and is considered as a main specialized module related to subspecialty and the remaining three modules, will be considered subsidiary modules. The modules of this course are the following:

1- **Module 1 Clinical Chemistry (main unit or module)**
2- **Module 2 Clinical Immunology (subsidiary unit or module)**
3- **Module 3 Hematology (subsidiary unit or module)**
4- **Module 4 Clinical Microbiology (subsidiary unit or module)**

Units' Titles' list	% from total Marks	Level (Year)	Core Credit points		
			Didactic	training	Total
I-Subsidiary units (modules) - Clinical Immunology, - Hematology, and - Clinical Microbiology	29.4	At any time*(1,2,3,4)	7.2	36	43.2
II-Main unit (module) - Clinical I Chemistry	70.6	1,2,3,4	16.8	87	103.8
Total No. of Units(4 units)	100	4	24	123	147

*Teaching of these subsidiary units is according to time schedules and rotation of candidates within different units of department will be distributed allover the study years or at any time and the credit points distributed equally between these subsidiary units(3units) either didactics (2.4CP)or training(12CP) for each.

Clinical Pathology
Department
Faculty of Medicine

Unit 1; Clinical Chemistry (main unit)

Requirements

- **Credit points:** 16.8 credit point for didactic (lectures, seminars, tutorial) and 87 point for training; total ; 103.8CP.
- **Minimal rate of attendance 80% of training and didactic.**
- **Time schedule of teaching (didactics and training) is presented in table below.**

Units' Titles' list	% from total Marks	Level (Year)	Core Credit points		
			Didactic	training	Total
Main unit (module) ***Clinical Chemistry***	70.6	1,2,3,4	16.8	87	103.8
-Analytical Techniques, Carbohydrates and Lipid	12.1%	1	2.8	15	17.8
- Amino acids and proteins , kidney, electrolyte, enzymes and liver disease	19.89%	2	5.25	24	29.25
- Cardiac disease, mineral and Bone metabolism, gastric, pancreatic and intestinal and endocrinology	19.42%	3	4.55	24	28.55
- Pregnancy, vitamins and trace elements, body fluid, hemoglobin, iron and porphyrin, geriatrics and pediatrics, tumor markers and quality control	19.18%	4	4.2	24	28.2

(Module) 1

(Clinical Chemistry main course)

Rotation / attendance proof

الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

Requirements

- **Credit points:** 16.8 credit point for didactic (lectures, seminars, tutorial) and 87 point for training, total=103.8CP.
- Minimal rate of attendance 80% of training and didactic

2.8 Credit points Clinical Chemistry Lectures and tutorials maim unit

Year 1

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**(0.8)CP**	**Clinical Pathology**	**(8 hours)** **<u>Analytical Techniques:</u>** **Electrochemistry and Chemical Sensors:** POTENTIOMETRY AND ION-SELECTIVE ELECTRODES • Types of electrodes. • Direct potentiometry by ISE. VOLTAMMETRY/AMPEROMETRY CONDUCTOMETRY COULOMETRY OPTICAL CHEMICAL SENSORS BIOSENSORS • Enzyme-based biosensors with amperometric detection. • Enzyme-based biosensors with potentiometric and conductometric detection. • Enzyme-based biosensors with optical detection. • Affinity sensors. IN VIVO AND MINIMALLY INVASIVE SENSORS	28.57% of didactics unit in this **year**
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical Chemistry	continued	**Clinical Pathology**	**Mass Spectrometry:** BASIC CONCEPTS AND DEFINITIONS INSTRUMENTATION • Ion Source. • Vacuum System. • Mass Analyzers, Ion Detectors, and Tandem Mass Spectrometers. • Detectors. • Computer and Software. CLINICAL APPLICATIONS Gas Chromatography-Mass Spectrometry. • Liquid Chromatography-Mass Spectrometry. • MALDI-TOF Mass Spectrometry. • SELDI Mass Spectrometry. • ICP Mass Spectrometry. • Proteomics.	continued
	1CP		**(10 hours)** **<u>Carbohydrates:</u>** Biochemistry and metabolism. Diabetes mellitus: - Classification. - Pathogenesis of type 1 DM. - Pathogenesis of type 2 DM Diagnosis - Gestational Diabetes Mellitus. - Acute Complications of DM. - Chronic Complications of DM.	35.71% of didactics unit in this **year**
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	continued	**Clinical Pathology**	**Hypoglycemia:** - Hypoglycemia in neonates and infants. - Fasting hypoglycemia in adults. - Postprandial hypoglycaemia. - Hypoglycemia in diabetes mellitus. - Tolbutamide tolerance test. Determination of glucose in body fluids. - Clinical significance and measurements of: ketone bodies lactate, pyruvate, glycated hemoglobin and urinary albumin excretion. Inborn errors of carbohydrate metabolism and glycogen storage disease.	continued
	1CP 0.3 0.3		**(10 hours)** **Lipids, Lipoproteins, Apolipoproteins, and Other Cardiovascular risk Factors:** **(3 hours)** Biochemistry and metabolism of Basic Lipids Lipoproteins and Apolipoproteins. **(3 hours)** Clinical significance: • Association with Coronary Heart Disease. • Disorders of Lipoprotein Metab	35.71% of didactics unit in this **year**
	Student signature		Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	ercentage of Achieved points
Clinical Chemistry 0.2CP 0.2CP		**Clinical Pathology**	• Disorders. • Management of Lipoprotein Disorders. **(2 hours)** Measurements of Lipids, Lipoproteins and Apolipoproteins. **(2hours)** Other cardiac risk factors: -High-Sensitivity C-Reactive Protein. -Homocysteine.	
			• form	
Student signature			Principle coordinator signature	Head of the department signature

15 Credit points Clinical training in Clinical ChemistryYear 1

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	15CP	Clinical Pathology	➢ Practice with for at least 2 months in the clinical chemistry unit including performance and interpretation of different laboratory techniques ➢ Log of laboratory skills as mentioned below;	100% of training unit in year 1
	0.5		-Attend in lab for at least **one hour / day -Twice/week for four weeks to** Perform in Clinical Chemistry lab. **at least 4 times with level A of** Basic Laboratory Techniques: 1- Specimen collection 2- Pipettes 3- Centrifuges 4- Balances 5- pH meter 6- Spectrophotometry	3.33% of training unit in year 1
	0.5		-Attend in lab for at least **Two hours/day once /week for four weeks** to Perform in clinical chemistry and emergency laboratory at **least 4 times with level B& A of the following techniques:** chemical analysis of the following tests :glucose, Urea, Creatinine , Creatinine clearance,	3.33% of training unit in year 1
Student signature			Principle coordinator signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	**continued**	**Clinical Pathology**	microalbumin, Uric acid, Bilirubin (total and direct),Total ALP, GGT ,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph with attendance three hours /day	continued
	0.5		-Attend in lab for at least one hour /day -once /week for four weeks to Perform in clinical chemistry units at least 4 times with level C,B& A of the following techniques: Glycated Hb(Hb A1c) & Microalbumin	3.33% of training unit in year 1
	0.5		-Attend in lab for at least two hours/day twice /week for four weeks toPerform in clinical chemistry units at least 8 times with level C,B in different automated chemistry analyzer	3.33% of training unit in year 1
	0.5		-Attend in lab for at least one hour /day, twice / week for four weeks to Perform complete urine analysis 8 times with level C,B& A.,	3.33% of training unit in year 1
Student signature			**Principle coordinator Signature**	**Head of the department signature**

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	0.5	Clinical Pathology	Attend in lab for at least one hour /day- once/week for four weeks to Perform in clinical chemistry laboratory, analysis of biological fluids	3.33% of training unit in year 1

			: Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids at least 4 times with level C,B& A ,	
	0.5		-Attend in lab for at least two hours /day twice/week for four weeks to Perform in hormonal assay and tumor markers laboratories hormones and the following tumor markers (CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit)at least 4 times with level C&B	3.33% of training unit in year 1
	0.5		-Attend in lab for at least two hours/day for two weeks including Interpretation of lab results at least 60 -80 times	3.33% of training unit in year 1
	0.5		-Attend in lab for at least two hours /day twice/week for four weeks to Perform in electrophoresis laboratory electrophoresis at least 2 times with level B &C	3.33% of training unit in year 1
	0.5		Apply quality control and laboratory safety at least 4 times with attendance 1-2hour/day once/week for 8 weeks	3.33% of training unit in year 1
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	1.5CP	Clinical Pathology	➢ Attend Night shift (From 2 pm to 8 am) at least15 night shift ;one shift night/week for 15 weeks	10% of training unit in year 1
	1.5		➢ Attendance of at least 3 -4 hours/days for four weeks in clinical Immunology laboratory	10% of training unit in year 1
	1.5		➢ Attendance of at least 3 -4 hours/days for four weeks in Hematology laboratory	10% of training unit in year 1
	1.5		➢ Attendance of at least 3 -4 hours/days for four weeks in Microbiology laboratory	10% Clinical training Clinical Chemistry
	2		➢ Attendance of at least 3 -4 hours/days for four weeks in Blood Bank	13.33% Clinical training unit in year1
	2		➢ Formative assessment	13.33% Clinical training unit in year1
Student signature			Principle coordinator Signature	Head of the department signature

*** Level of competency**

A- Independent performance
B- Performance under supervision
C- Observed

Management plan of the following Clinical chemistry Procedures log

Procedure	Number
Basic Laboratory Techniques:- Specimen collection , Pipettes Centrifuges , Balances, pH meter, Spectrophotometry**.**	8
chemical analysis of :glucose, Urea, Creatinine , Creatinine clearance, microalbumin, Uric acid, Bilirubin (total and direct),Total proteins,Albumin , ALT, AST, ALP, GGT.,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph**.**	4
Glycated Hb(Hb A_1c) and Microalbumin	4
Automation in clinical chemistry	8
Urine analysis	8
Analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids	4
Tumor markers : CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit	4
Interpretation of lab results	60-80
Electrophoresis	2

Clinical chemistry cases log (Year 1)

Log of:

Case	Number
Cases related to **Carbohydrates and Lipid disorders**	10 cases

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

5.25 Credit point in Clinical Chemistry Lectures and tutorials main unit Year 2

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**(0.75)CP**	**Clinical Pathology**	**(7.5 hours)** **Amino Acids, Peptides And Proteins** **(1 hour)** AMINO ACIDS: -Basic biochemistry. -Clinical implications. - Analysis of amino acids. **(6.5 hours)** PEPTIDES AND PROTEINS: - Basic biochemistry. - Plasma proteins: -Albumin. -α_1 acid glycoprotein. - α_1 antitrypsin. - α_2 macroglobulin. - α_1 fetoprotein. - β_2 microglobulin. - Ceruloplasmin. - Haptoglobin. -Transferrin. -Transthyretin (prealbumin) and retinol-binding protein. - Complement proteins. -Immunoglobulins and paraproteins. - Analysis of Proteins	14.29% didactics unit in year 2 1.9% 12.38%.
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**1.3CP**	**Clinical Pathology**	**(13 hours)** **The Kidney And Non-Protein Nitrogenous Compounds:**	24.76% didactics unit in year 2
	0.2CP		**(2hours)** KIDNEY ANATOMY, FUNCTION AND PHYSIOLOGY: • Excretory and Reabsorptive Functions. • Regulatory Function. • Endocrine Function. • Glomerular Filtration Rate. • Proteinuria.	3.8%
			(5hours) DISEASES OF THE KIDNEY • The Uremic Syndrome. • Chronic Kidney Disease. • End-Stage Renal Disease. • Diabetic Nephropathy. • Hypertensive Nephropathy. • Glomerular Diseases. • Interstitial Nephritis. • Polycystic Kidney Disease. • Toxic Nephropathy. • Obstructive Uropathy. • Tubular Diseases. • Diabetes Insipidus. • Renal Calculi. • Cystinuria. Prostaglandins and NSAIDs in Kidney Disease.	9.5%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**0.6CP**	**Clinical Pathology**	• Monoclonal Light Chains and Kidney Disease. • Assessment of Renal Concentrating Ability: Urinary Osmolality. **(6 hours)** KIDNEY FUNCTION TESTS: CREATININE, UREA and URIC ACID • Biochemistry and Physiology. • Clinical Significance. • Analytical Methodology. SCREEENING FOR KIDNEY DISEASE • Urinalysis. • Microscopic Examination of Urine. • New Instrumental Techniques. QUANTITATIVE ASSESSMENT OF GLOMERUlAR PERMEABILITY (PROTEINURIA) • Clinical Significance. • Sample Collection for Total Protein and Albumin. • Measurement of Total Protein. • Measurement of Individual Proteins.	11.4%
Student signature			Principle coordinator signature	Head of the department signature

Name of the Unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical chemistry		**Clinical pathology**	• Measurement of Individual Proteins. • Characterization of Proteinuria. ESTIMATION OF GLOMERULAR FILTRATION RATE: • The Concept of Clearance. • Markers Used. • Glomerular Filtration Rate at the Extremes of Age.	
	1.1CP 0.1 0.2		**11 hours)** **Physiology and Disorders of Water, Electrolyte, and Acid-Base Metabolism:** **(1hour)** WATER AND ELECTROLYTES-COMPOSITION OF BODY FLUIDS. PLASMA AND URINE OSMOLALITY: **(2 hours)** • Principles of Osmotic Pressure and Osmosis. ELECTROLYTES: Sodium. Potassium. Chloride	**20.95% didactics unit in year 2** 1.9% 3.8%
Student signature			Principle coordinator signature	Head of the department signature

Name of the	Credit points	Responsible	Attendance	Percentage of

UNIT		department		Achieved points
Clinical chemistry	**0.2**	**Clinical pathology**	**2 hours)** ACID-BASE PHYSIOLOGY: • Acid-Base Balance and Acid-Base Status. • Buffer Systems and Their Role in Regulating the pH of Body Fluids • Respiratory Mechanism in the Regulation of Acid-Base Balance. • Renal Mechanisms in the Regulation of Acid –Base Balance.	3.8%
	0.5		**(5 hours)** CONDITIONS ASSOCIATED WITH ABNORMAL ACID-BASE STATUS AND ABNORMAL ELECTROLYTE COMPOSITION OF THE BLOOD: • Metabolic Acidosis. • Metabolic Alkalosis. • Respiratory Acidosis. • Respiratory Alkalosis. • Mixed acid base disorders.	9.5.%
	0.1		**1 hour)** BLOOD GASES AND pH: • Oxygen in Blood. • Tonometry. • Determination of PCO_2, PO_2, and pH. • Continuous and Noninvasive Monitoring of Blood Gases	1.9%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical chemistry	**(0.9CP** *0.1CP for each topic*	**Clinical pathology**	**(0.9 hours)** **Enzymes And Principles of Clinical Enzymology:** *BASIC PRINCIPLES:* • Enzyme Nomenclature. • Enzymes as Proteins. • Enzymes as Catalysts. *ENZYME KINETICS:* • The Enzyme-Substrate Complex. • Factors Governing the Rate of Enzyme-Catalyzed Reactions. *ANALYTICAL ENZYMOLOGY:* • Measurement of Reaction Rates. • Units for Expressing Enzyme Activity. • Measurement of Substrates. • Optimization, Standardization, and Quality Control. • Measurement of Enzyme Mass Concentration. • Enzymes as Analytical Reagents. • Analytical Applications of Immobilized Enzymes. • Measurement of Isoenzymes and Isoforms.	17.14% didactics unit in year 2 *1.9% for each topic*
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical chemistry	**0.5** *0.1CP for each*	**Clinical pathology**	*DIAGNOSTIC ENZYMOLOGY:* • Factors Affecting Enzyme Levels in Plasma or Serum. • Selection of Enzyme Tests. **(5 hours)** ENZYMES: *MUSCLE ENZYMES* • Creatine Kinase. • Lactate Dehydrogenase. • Aldolase. • Glycogen Phosphorylase. *LIVER ENZYMES* • Aminotransferases. • Glutamate Dehydrogenase. • Alkaline Phosphatase. • 5' –Nucleotidase. • Gamma-Glutamyl. Transferase. • Glutathione S-Transferase. • Cholinesterase. *PANCREATIC ENZYMES* • Amylase. • Lipase. • Trypsin. • Chymotrypsin. • Elastase-I. *BONE ENZYMES* • Alkaline Phosphatase (Bone Isoform). • Acid Phosphatase (Tartrate-Resistant).	9.5% *2.19% for each topic*
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry		**Clinical Pathology**	*RED CELL ENZYMES* • The Embden-Meyerhof Pathway. • Hexose Monophosphate Pathway. • Rapoport -Luebering Cycle. • Glutathione Pathway. • Purine-Pyrimidine Metabolism. • Methemoglobin Reduction. • Detection of Hereditary Red Cell Enzyme Deficiencies.	
	0.9CP 0.1 0.1 0.1		**(9 hours)** **Liver Disease:** **(1 hour)** ANATOMY AND BIOCHEMICAL FUNCTIONS OF THE LIVER: -Hepatic Excretory Function. -Hepatic Synthetic Function. -Hepatic Metabolic Function. -Hepatic Storage Function. **(1 hour)** BILIRUBIN: • Chemistry. • Biochemistry. • Analytical Methodology. • Clinical Significance. **(1 hour)** CLINICAL MANIFESTATIONS OF LIVER DISEASE: • Jaundice	**17.14% didactics unit in year 2** 1.9% 1.9% 1.9%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.5	**Clinical Pathology**	• Portal Hypertension. • Hepatorenal Syndrome. • Altered Drug Metabolism • Nutritional and Metabolic Abnormalities. • Disordered Hemostasis in Liver Disease. • Enzymes Released from Diseased Liver Tissue. **(5 hours)** DISEASES OF THE LIVER: • Mechanisms and Patterns of Injury. • Disorders of Bilirubin Metabolism. • Hepatic Viral Infection. • Acute Hepatitis. • Chronic Hepatitis. • Alcoholic Liver Disease. • Cirrhosis. • Nutritional liver diseases. • Fatty liver. • Hepatic Glycogenoses. • Cholestatic Liver Diseases. • Hepatic Tumors.	9.5%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.1CP	**Clinical Pathology**	• Hepatic Tumors. **(1 hour)** DlAGNOSTIC STRATEGY: • Plasma Enzymes. • Plasma Albumin. • Prothrombin Time. • Plasma Bilirubin.	1.9%
	0.3CP		• FORMATIVE assessment	5.7%
Student signature			Principle coordinator signature	Head of the department signature

24 Credit points Clinical training in Clinical Chemistry Year 2

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	24CP	Clinical Pathology	➢ Practice for at least 6 months in the clinical chemistry unit including performance and interpretation of different laboratory techniques ➢ Fulfilling Log of laboratory skills as mentioned below;	100% of unit **training** in year 2
	2		Attend and practice in lab for at least Two hours/day once/week for 8 weeks to - Perform in clinical chemistry and emergency laboratory at least 8 times with level A of the following techniques: chemical analysis of the following tests :glucose, Urea, Creatinine , Creatinine clearance, microalbumin, Uric acid, Bilirubin (total and direct),Total ALP, GGT ,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph with attendance three hours /day	8.33% of unit **training** in year 2
	1		Attend and practice in lab for at leas one hours /day once/week for 8 weeks to Perform in clinical chemistry units at least 8 times with level A of the following technique:Glycated Hb(Hb A1c and Microalbuminuria	4.17% of unit **training** in year 2
Student signature			Principle coordinator signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	2	Clinical Pathology	Attend and practice in lab for at leas two hours/day once /week for four weeks to Perform in clinical chemistry units at least 8 times with level A in different automated chemistry analyzer	8.33% of unit **training** in year 2
	1		Attend and practice in lab for at least one hour /day, twice / week for 8 weeks to Perform complete urine analysis 16 times with level A ,	4.17% of unit **training** in year 2
	1.5		Attend and practice in lab for at least two hours /day once /week for 8 weeks to Perform in clinical chemistry laboratory, analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids at least **8 times with level A.**	6.25% of unit **training** in year 2
	1.5CP		Attend and practice in lab for at leas **two hours /day twice** /week for 8 weeks to Perform in hormonal assay and tumor markers laboratories hormones and the following tumor markers (CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit)at least 8 times with level A	6.25% of unit **training** in year 2
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	2	Clinical Pathology	Attend and practice in lab for at leas two hours/day for 8 weeks including interpretation of lab results at least 200 -250 times	8.33% of unit **training** in year 2
	1		Attend and practice in lab for at least once/week for 8 weeks to Perform in electrophoresis laboratory electrophoresis at least 8 times with level A	4.17% of unit **training** in year 2
	1		Apply quality control and laboratory safety at least **8 time with attendance for 2hours/day once/week for 8 weeks**	4.17% of unit **training** in year 2
	5		➢ Attend night shift (From 2 pm to 8 am) at least 30 night shift, one night shift/week for 30 weeks	20.83% of unit **training** in year 2
	1		➢ Attend Clinical teaching 2 hours /week/ for 16 weeks	4.17% of unit **training** in year 2
	3		➢ Attendance of at least three to four hours/days for four weeks in outpatient clinic lab.	12.5% of unit **training** in year 2
	2		➢ Formative assessment	8.33% of unit **training** in year 2
Student signature			Principle coordinator Signature	Head of the department signature

Level of competency

A- Independent performance
B- Performance under supervision
C- Observed

Management plan of the following Clinical chemistry Procedures log

Procedure	Number
chemical analysis of :glucose, Urea, Creatinine , Creatinine clearance, microalbumin, Uric acid, Bilirubin (total and direct),Total proteins,Albumin , ALT, AST, ALP, GGT.,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph**.**	8
Glycated Hb(Hb A_1c) and Microalbumin	8
Automation in clinical chemistry	8
Urine analysis	16
Analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids	8
Tumor markers : CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit	8
Interpretation of lab results	200 -250
Electrophoresis	8

* **Level of competency**

A- Independent performance
B- Performance under supervision
C- Observe

Clinical chemistry cases log (Year 2)

Log of:

Case	Number
Cases related to Amino acids and proteins , kidney, electrolyte, enzymes and liver disorders	**10 cases**

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

4.55 Credit point in Clinical Chemistry Lectures and tutorials (main unit)

Year (3)

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**(0.75)CP** 0.1 0.5	**Clinical Pathology**	**(7.5 hours)** **Cardiac Disease And Biomarkers** **(1hour)** CARDIAC DISEASE • Congestive Heart Failure. • Acute Coronary Syndromes. **(5 hours)** CARDIAC BIOMARKERS: CLINICAL UTILITY • Cardiac Troponin I and T. • Brain Natriuretic Peptide. • Creatine Kinase Isoenzymes and Isoforms. • Myoglobin. • Lactate Dehydrogenase Isoenzymes. • C-Reactive Protein. • Serum Amyloid. • sCD40 Ligand. • Cytokines. • Myeloperoxidase. • Phospholipase A2. • Pregnancy Associated Plasma Protein A. • Oxidized LDL. • Matrix Metalloproteinases. • Monocyte Chemotactic Protein	16.48% of didactics unit 1 in year 2.19% 10.98%
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.15	**Clinical Pathology**	• Tumor Necrosis Factor Alpha. • Tissue Plasminogen Activator Antigen. • Secreted Platelet Granular Substances. • Isoprostanes. • Urinary Thromboxane. • Adhesion Molecules. Other Proposed Markers **(1.5 hours)** ANALYTICAL MEASUREMENT OF CARDIAC PROTEINS • Cardiac Troponin. • Brain Natriuretic Peptide. • Creatine Kinase-2 and Isoforms. • Myoglobin. Lactate Dehydrogenase Isoenzymes.	3.29%
	0.75CP 0.15		**7.5 hours)** **Mineral and Bone Metabolism:** **(1.5 hours)** HORMONES REGULATING MINERAL METABOLISM: • Parathyroid Hormone. (Vitamin D and Its Metabolites. • Calcitonin. • Parathyroid Hormone-Related Protein.	16.48% of didactics unit 1 in year3 3.29%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.3CP	**Clinical Pathology**	INTEGRATED CONTROL OF MINERAL METABOLISM: • Renal Handling of Calcium and Phosphate. • Intestinal Absorption of Calcium and Phosphate. • Bone Metabolism. • Magnesium. **3 hours)** CALCIUM: • Biochemistry and Physiology. • Clinical Significance. • Calcium Measurements. • Physiological Variation in Calcium. • Interpretation of Total and Free Calcium Results. • Urinary Calcium. PHOSPHATE: • Biochemistry and Physiology. • Clinical Significance. • Measurement of Phosphate. • Reference Intervals. MAGNESIUM: • Biochemistry and Physiology. • Clinical Significance. • Measurement of Total Magnesium.	6.59%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.15CP	**Clinical Pathology**	• Measurement of Free (Ionized) Magnesium. • Reference Intervals for Total and Free Magnesium **(1.5 hours)**	3.29%
	0.15CP		METABOLIC BONE DISEASES: • Osteoporosis. • Osteomalacia and Rickets. • Paget's Disease. • Renal Osteodystrophy. **(1.5hours)** BIOCHEMICAL MARKERS OF BONE TURNOVER: • Preanalytical and Analytical Variables. • Markers of Bone Resorption. • Markers of Bone Formation	3.29%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**0.45CP**	**Clinical Pathology**	**Determination of Basal Acid output** *(4.5 hours)*	9.89% of didactics unit in year 3
Clinical Chemistry	0.09 0.09 0.0.9	**Clinical Pathology**	**Gastric, Pancreatic And Intestinal** **(0.9hour)=55min** STOMACH: DISEASES AND LABORATORY INVESTIGATIONS: • Peptic Ulcer Disease and *Helicobacter pylori.* • Diagnostic Tests for *H. pylori.* **(0.9hour)=55min** INTESTINAL DISORDERS AND THEIR LABORATORY INVESTIGATION: • Celiac Disease (Celiac Sprue, Gluten-Sensitive Enteropathy). • Disaccharidase Deficiencies. • Bacterial Overgrowth. • Bile Salt Malabsorption. • Protein-Losing Enteropathy **(0.9hour)=55min** THE PANCREAS: DISEASES AND AND ASSESSMENT OF EXOCRINE PANCREATIC FUNCTION:	1.97% for each
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.09 0.09	**Clinical Pathology**	• Pediatric Disorders of the Exocrine Pancreas. • Adult Disorders of the Exocrine Pancreas. • Tests of Exocrine Function of the Pancreas **(0.9hour)=55min** GASTROINTESTINAL REGULATORY PEPTIDES: • Cholecystokinin. • Gastrin. • Secretin. • Vasoactive Intestinal Polypeptide. • Glucose-Dependent Insulinotropic Peptide (GIP, Gastric Inhibitory Polypeptide). • Other Regulatory Peptides. **(0.9 hour)=55min** NEUROENDOCRINE TUMORS: • Gastrinoma and the Zollinger-Ellison Syndrome • The Watery Diarrhea Hypokalemia Achlorhydria Syndrome (Werner-Morrison Syndrome, WDHA Syndrome, VIPoma).	
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry		**Clinical Pathology**	• Other Gastrointestinal Neuroendocrine Tumors and Tumor Markers. • Lactate Dehydrogenase Isoenzyme	
	1.9CP		**(19 hours)**	41.75% of didactics unit 1 in year3
			Endocrinology : GENERAL ENDOCRINOLOGY: CLASSIFICATION • Polypeptide or Protein Hormones. • Steroid Hormones. • Amino Acid-Related Hormones. RELEASE AND ACTION OF HORMONES • Growth and Development. • Homeostatic Control of Metabolic Pathways. • Regulation of the Production, Use, and Storage of Energy. ROLE OF HORMONE RECEPTORS • Cell-Surface Receptors. • Intracellular Receptors.	
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry		**Clinical Pathology**	POSTRECEPTOR ACTIONS OF HORMONES • Cell-Surface Receptors. • Intracellular Receptors. CLINICAL DISORDERS OF HORMONES MEASUREMENTS OF HORMONES AND RELATED ANALYTES • Growth and Development. • Homeostatic Control of Metabolic Pathways. • Regulation of the Production, Use, and Storage of Energy. ROLE OF HORMONE RECEPTORS • Cell-Surface Receptors. • Intracellular Receptors. POSTRECEPTOR ACTIONS OF HORMONES • Cell-Surface Receptors. • Intracellular Receptors. CLINICAL DISORDERS OF HORMONES MEASUREMENTS OF HORMONES AND RELATED • ANALYTES • Bioassay Techniques. • Receptor-Based Assays. • Immunoassay Techniques. • Instrumental Techniques	11.9% of didactics unit 1 in year3
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.38CP 0.38CP 0.38CP	**Clinical Pathology**	**(3.8 hours)** **Pituitary And Hypothalamus:** ADENOHYPOPHYSIS **3.8hours)** **Pituitary And Hypothalamus:** ADENOHYPOPHYSIS • Regulation of Function. • Growth Hormone and Insulin-like Growth Factors. • Prolactin. • Corticotropin (Adrenocorticotropin) and Related Peptides. • Gonadotropins (Follicle-Stimulating Hormone, Luteinizing Hormone). • Thyrotropin. • Assessment of Anterior Pituitary Lobe Reserve. NEUROHYPOPHYSIS • Arginine Vasopressin. • Oxytocin. **(3.8hours)** **The Thyroid: Pathophysiology and Thyroid Function Testing:** THYROID HORMONES • Hypothyroidism. • Hyperthyroidism. • Nonthyroidal Illness. Hypothyroidism Versus Euthyroid Sick Syndrome	8.35% 8.35% 8.35%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.38CP	**Clinical Pathology**	• Hyperthyroid Versus Euthyroid Sick Syndrome. • Effect of Drugs. • Diagnosis of Thyroid Dysfunction. ANALYTICAL METHODS **(3.8hours)** **The Adrenal Hormones:** **1- The Adrenal Cortex:** ADRENOCORTICAL STEROIDS • General Biochemistry. • Metabolism. • The Hypothalamic-Pituitary-Adrenal Cortical Axis. • Regulation of Adrenal Hormones. • Testing the Functional Status of the Adrenal Cortex. DISORDERS OF THE ADRENAL CORTEX • Hypofunction of the Adrenal Cortex. • Hyperfunction of the Adrenal Cortex. ANALYTICAL METHODOLOGY	8.35%
Student signature			**Principle coordinator signature**	**Head of the departmen t signature**

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.38CP	**Clinical Pathology**	• Choice of Specimen. • Free Versus Bound Steroids. • Hydrolysis, Extraction, and Separation. • Specific Methods. **2- Catecholamines and Serotonin** CHEMICAL STRUCTURE, BIOSYNTHESIS, RELEASE, AND METAEOLISM • Biosynthesis. • Storage and Release. • Uptake and Metabolism. PHYSIOLOGY OF CATECHOLAMINE AND SEROTONIN SYSTEMS • Central Nervous System. • Sympathetic Nervous System. • Adrenal Medullary System. • Peripheral Dopaminergic System. • Enteric Nervous System. CLINICAL APPLICATIONS • Pheochromocytoma. Neuroblastoma. **3.8 hours)** **Reproductive Related Disorders** MALE REPRODUCTNE BIOLOGY • Anatomy. • Hypothalamic-Pituitary-Gonadal Axis. • Androgens. • Male Reproductive Development.	8.35%
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry		**Clinical Pathology**	• Male Reproductive Abnormalities. FEMALE REPRODUCTIVE BIOLOGY • Anatomy. • Hypothalamic-Pituitary-Gonadal Axis. • Estrogens. • Progesterone. • Female Reproductive Development. • Female Reproductive Abnormalities. • Normal Menstrual Cycle. • Ovulation. • Irregular Menses. INFERTILITY • Male Infertility • Female Infertility • Assisted Reproduction ANALYTICAL METHODOLOGY	
	0.45CP		**Inborn Errors of Metabolism:** **(4 .5hours)** BIOCHEMICAL DIAGNOSIS: • Prenatal Diagnosis. • Newborn Screening. • Evaluation of Symptomatic Patients. DISORDERS OF AMINO ACID METABOLISM:	9.89% of didactics unit 1 in year3
Student signature			Principle coordinator signature	Head of the department signature

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry		**Clinical Pathology**	Classic Phenylketonuria • Tyrosinemia Type 1. • Homocystinuria. • Maple Syrup Urine Disease. • Urea Cycle Defects. • Nonketotic Hyperglycinemia. DISORDERS OF ORGANIC ACID METABOLISM: DISORDERS OF FATTY ACID OXIDATION:	
	0.25CP		Formative assessment	5.49%
Student signature			Principle coordinator signature	Head of the department signature

24 Credit points Clinical training in Clinical Chemistry Year 3

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	24	Clinical Pathology	➢ Practice with for at least 6 months in the clinical chemistry unit including performance and interpretation of different laboratory techniques ➢ Fulfilling Log of laboratory skills as mentioned below;	100% of unit training in year 3
	1.5		-Attend in lab for at least **Two hours/day once/week for 8 weeks to** Perform in clinical chemistry and emergency laboratory at **least 8 times with level A of the** following techniques: chemical analysis of the following tests :glucose, Urea, Creatinine , Creatinine clearance, microalbumin, Uric acid, Bilirubin (total and direct),Total ALP, GGT ,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph	6.25% of unit training in year 3
	1		-Attend in lab for at least one hours /day - once /week for 8 weeks to Perform in clinical chemistry units at least 8 times with level A of the following techniques: Glycated Hb(Hb A1c) Microalbumin	4.17% of unit training in year 3
Student signature			Principle coordinator signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	1.5	Clinical Pathology	-Attend in lab for at least two hours/day -once/week for four weeks to Perform in clinical chemistry units at least 8 times with level A in different automated chemistry analyzer	6.25% of unit training in year 3
	1		-Attend in lab for at least one hour /day, twice / week for 8 weeks to Perform complete urine analysis 16 times with level A.	4.17% of unit training in year 3
	2		-Attend in lab for at least two hour /day -once /week for 8 weeks to Perform in clinical chemistry laboratory, analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids at least 8 times with level A.	8.33% of unit training in year 3
	2		-Attend in lab for at least two hours /day twice/week for 8 weeks to Perform in hormonal assay and tumor markers laboratories hormones and the following tumor markers (CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit)at least at least 8 times with level A	8.33% of unit training in year 3
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	2	Clinical Pathology	-Attend in lab for at least two hours/day for 8 weeks including practice Interpretation of lab results at least 200 -250 results with attendance two hours/day for 8 weeks.	8.33% of unit training in year 3
	1		-Attend in lab for at least once/week for 8 weeks To Perform in electrophoresis laboratory electrophoresis at least 8 times with level A	4.17% of unit training in year 3
	1		Apply quality control and laboratory safety at least 8 times with 2hours/day once /week for 8 weeks	4.17% of unit training in year 3
	5		➢ Attend night shift (From 2 pm to 8 am) at least 30 night shift, at least one shift night/week for 30weeks	20.83% of unit training in year 3
	1		➢ Attend Clinical teaching for at least 2 hours /week/ for 16 week	4.17% of unit training in year 3
	3		➢ Attend of at least three to four hours/days for four weeks in Emergency laboratory .	12.5% of unit training in year 3
	2		➢ Formative assessment	8.33% of unit training in year 3
Student signature			Principle coordinator Signature	Head of the department signature

Level of competency

A- Independent performance
B- Performance under supervision
C- Observed

Management plan of the following Clinical chemistry Procedures log

Procedure	Number
chemical analysis of :glucose, Urea, Creatinine , Creatinine clearance, microalbumin, Uric acid, Bilirubin (total and direct),Total proteins,Albumin , ALT, AST, ALP, GGT.,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph**.**	8
Glycated Hb(Hb A_1c) and Microalbumin	8
Automation in clinical chemistry	8
Urine analysis	16
Analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids	8
Tumor markers : CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit	8
Interpretation of lab results	200 -250
Electrophoresis	8

* **Level of competency**
  A- Independent performance
  B- Performance under supervision
  C- Observed

Clinical chemistry cases log (Year 3)

Log of:

Case	Number
Cases related to **Cardiac disease, mineral and Bone metabolism, gastric, pancreatic , intestinal and endocrine disorders**	10 cases

* Level of participation
  A- Plan and carry out
  B- Carry out
  C- Carry out under supervision

4.2 Credit point in Clinical Chemistry Lectures and tutorials (main unit)

Year (4)

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**(0.25)** **0.1** **0.15**	**Clinical Pathology**	**(2.5 hours)** **Clinical Chemistry of Pregnancy:** **(1 hour)** COMPLICATIONS OF PREGNANCY: • Abnormal Pregnancies. • Trophoblastic Disease. • Fetal Anomalies. • Preterm Delivery. MATERNAL SERUM SCREENING FOR FETAL DEFECTS: • Clinical Application of Prenatal Screening. **(1.5 hours)** LABORATORY TEST • Chorionic Gonadotropin. • Alpha Fetoprotein. • Unconjugated Estriol. • Dimeric Inhibin A. • Fetal Fibronectin. • Amniotic Fluid Bilirubin. • Tests for Evaluating Fetal Lung Maturity.	5.95% of didactics unit in year 4 2.38% 3.57%
	0.9 0.45		**9 hours)** **vitamins and Trace Elements** **(4.5 hours)** VITAMINS :	21.42% of didactics unit in year 4
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.45	**Clinical Pathology**	**(**Vitamin A. • Vitamin D. • Vitamin E • Vitamin K. • Vitamin B_1-Thiamine. • Vitamin B_2-Riboflavin. • Vitamin B_6-Pyridoxine, Pyridoxamine, and Pyridoxal. • Vitamin B_{12}-Cyanocobalamin. • Vitamin C-Ascorbic Acid. • Biotin. • Folic Acid. • Niacin and Niacinamide. • Pantothenic Acid. **(4.5 hours)** TRACE ELEMENTS: • Classification. • Dose-Effect Relationships. • Chemistry. • Biochemistry/Homeostasis. • Inborn Errors. • Interactions. • Laboratory Assessment of Trace Element Status. • Analytical Considerations. • Individual Trace Elements. • Other Possibly Essential Elements	10.7% of didactics unit in year 4 10.7%
Student signature			Principle coordinator signature	Head of the department signature

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	0.45CP	**Clinical Pathology**	**(4.5hours)** **Body fluid analysis:** Clinical utility of testing the cerebrospinal fluid, serous, synovial, amniotic fluid and	10.7 % of didactics unit in year 4
	(0.25) **0.15** **0.1**		**(2.5hours)** **Hemoglobin, Iron and Porphyrin:** **(1.5hours)** HEMOGLOBIN • Biochemistry. • Physiological Role. Analytical Methodology • Clinical Significance. IRON • Biochemistry. • Analytical Methodology. • Clinical Significance. **(`1 hour)** PORPHYRINS and Disorders of PORPHYRIN METAEOLISM	5.95% of didactics unit in year 4 3.57% 2.38%
	0.2CP		**(2hours)** **Clinical chemistry of the geriatrics and paediatrics:** • Establishing reference intervals for elderly and paediatrics. • Biochemical and physiological changes of aging.	4.76% of didactics unit in year 4
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Chemistry	**continued**	**Clinical Pathology**	• Endocrine function changes. • Renal and hepatic function changes. Lipid and enzyme changes.	**continued**
	0.9 0.15 0.75		**(9 hours)** **Tumor Markers:** **(1.5hours)** CLINICAL APPLICATIONS & EVALUATING CLINICAL UTILITY: • Reference Values. • Predictive Value Model. • Distribution of Marker Values. • Disease Management. **7.5 hours)** CLASSIFICATION: ENZYMES • Alkaline Phosphatase. • Creatine Kinase. • Lactate Dehydrogenase. • Neuron-Specific Enolase. • Prostatic Acid Phosphatase. • Kallikreins. • Prostate-Specific Antigen. • Human Glandular Kallikrein • The Urokinase-Plasminogen Activator System. • Cathepsins. • **(**Matrix Metalloproteinases. • Tumor-Associated Trypsin Inhibitor..	21.42 % of didactics unit in year 4 3.57% 17.85%
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical chemistry		**Clinical Pathology**	• Telomerase. HORMONES • Adrenocorticotropic Hormone. • Calcitonin, • Human Chorionic Gonadotropin. ONCOFETAL ANTIGENS • Alpha Fetoprotein. • Carcinoembryonic Antigen. CYTOKERATINS • Tissue Polypeptide Antigen. • Tissue Polypeptide-Specific Antigen. • • Cytokeratin 19 Fragments. Squamous Cell Carcinoma Antigen. CARBOHYDRATE MARKERS • CA 15-3. • CA 549. CA 27.29. PROTEINS • Immunoglobulin. • Bladder Cancer Markers. • Heat Shock Proteins. • S-100 Proteins. • Autoantibodies. • Thyroglobulin and Antibodies. • Chromogranins.	
Student signature			Principle coordinator signature	Head of the department signature

Name of the Unit	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical chemistry		**Clinical Pathology**	RECEPTORS AND OTHER MARKERS • Estrogen and Progesterone Receptors. • Androgen Receptor. • Hepatocyte Growth Factor Receptor (c-Met). • Epidermal Growth Factor Receptor. GENETIC MARKERS • Oncogenes. • Tumor Suppressor Genes. • Single Nucleotide Polymorphisms. MISCELLANEOUS MARKERS • Markers of Angiogenesis. • Cell-Free Nucleic Acids. • Circulating Cancer cells.	
	(0.9CP)		**(0.9 hours)** **Quality control** - Specimen collection and other preanalytical variables - Statistical concepts - Reference intervals. -Method selection and evaluation.	21.42% of didactics unit in year 4
	0.25CP		**Formative assessment**	5.95%
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	ercentage of Achieved points
Clinical Chemistry		**Clinical Pathology**	- Quality assurance and quality control. - Proficiency testing and laboratory accreditation. - Safety	
Student signature			Principle coordinator signature	Head of the department signature

24 Credit points Clinical training in Clinical Chemistry

Year 4

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	24	Clinical Pathology	➢ Practice with for at least 6 months in the clinical chemistry unit including performance and interpretation of different laboratory techniques ➢ Fulfilling Log of laboratory skills as mentioned below;	100% unit training in year4
	2		Attend in lab for at least **Two hours/day once/week for 8 weeks** to Perform in clinical chemistry and emergency laboratory at **least 8 times with level A of the following techniques:** chemical analysis of the following tests :glucose, Urea, Creatinine , Creatinine clearance, microalbumin, Uric acid, Bilirubin (total and direct),Total ALP, GGT ,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph.	8.33% unit training in year4
	1		Attend in lab for at least **one hour/day once/week for 8 weeks** to Perform in clinical chemistry units at least **8 times with level A** of the following technique: Glycated Hb(Hb A1c) Microalbumin	4.17% unit training in year4
Student signature			Principle coordinator signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	2	Clinical Pathology	Perform in clinical chemistry units at least **8 times level A** in different automated chemistry analyzer **two hours/day one time/week for four weeks**	8.33% unit training in year4
	1		Attend in lab for at least one hour /day, twice / week for 8 weeks to Perform complete urine analysis 16 times with level A ,	4.17% unit training in year4
	2		Attend in lab for at least two hours /day once/week for 8 weeks To Perform in clinical chemistry laboratory, analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids at least 8 times withlevel A	8.33% unit training in year4
	2		Attend in lab for at least **two hour /day twice/week for 8 weeks** to Perform in hormonal assay and tumor markers laboratories hormones and the following tumor markers (CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit)at least at least 8 times with level A	8.33% unit training in year4
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training Clinical Chemistry	2	Clinical Pathology	Attend in lab for at least two hours/day for 8 weeks including practice interpretation of lab results at least 200 -250 results	8.33% unit training in year4
	1		Attend in lab for at least 4h/day once/week for 8 weeks to Perform in electrophoresis laboratory electrophoresis at lest 8 times with level A	4.17% unit training in year4
	1		Apply quality control and laboratory safety at least 8 times with attendance 2hours/day once/week for 8 weeks	4.17% unit training in year4
	5		➢ Attend Night shift (From 2 pm to 8 am) at least 30 night ;one shift night /week for 30 weeks	20.83% unit training in year4
	1		➢ Attend Clinical teaching for at least 2 hours /week/ for 16 week	4.17% unit training in year4
	3		➢ Attend at least three to four hours/days for four weeks in Blood bank laboratory .	12.5% unit training in year4
	1		➢ Formative assessment	4.17% unit training in year4
Student signature			Principle coordinator Signature	Head of the department signature

Level of competency

A- Independent performance
B- Performance under supervision
C- Observed

Management plan of the following Clinical chemistry Procedures log

Procedure	Number
chemical analysis of :glucose, Urea, Creatinine , Creatinine clearance, microalbumin, Uric acid, Bilirubin (total and direct),Total proteins,Albumin , ALT, AST, ALP, GGT.,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph**.**	8
Glycated Hb(Hb A_1c) and Microalbumin	8
Automation in clinical chemistry	8
Urine analysis	16
Analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids	8
Tumor markers : CEA , FreePSA, α-fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit	8
Interpretation of lab results	200 -250
Electrophoresis	8

*** Level of competency**

A- Independent performance
B- Performance under supervision
C- Observe.

Clinical chemistry cases log (Year 4)

Log of:

Case	Number
Cases related to hemoglobin, iron and porphyrin disorders.	6 cases
Cases with abnormalities in body fluids	6 cases

* Level of participation
  A- Plan and carry out
  B- Carry out
  C- Carry out under supervision.

Clinical Rotation (Clinical chemistry laboratory)

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation (Clinical chemistry laboratory)

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation (Clinical chemistry laboratory)

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation (Clinical chemistry laboratory)

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation hormonal assay and tumour marker lab.

Date/ Duration from -to	**Signature of supervisor**		Date/ Duration from -to	Signature of supervisor

Clinical Rotation electrophoresis laboratory.

Date/ Duration from -to	**Signature of supervisor**		Date/ Duration from -to	Signature of supervisor

Clinical Rotation Emergency Laboratory

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Quality control and laboratory safety

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Clinical Rotation Out Patient Clinic

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Laboratory skills in clinical chemistry

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in body fluid and urine analysis

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in automation in clinical chemistry

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in electrophoresis and immunoelectrophoresis

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Clinical Seminars log

Date	Attendance	Topic	Signature

Clinical Seminars log

Date	Attendance	Topic	Signature

Clinical Seminars log

Date	Attendance	Topic	Signature

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training*** ***From:***

To:

**** Site:***

****Rotation***

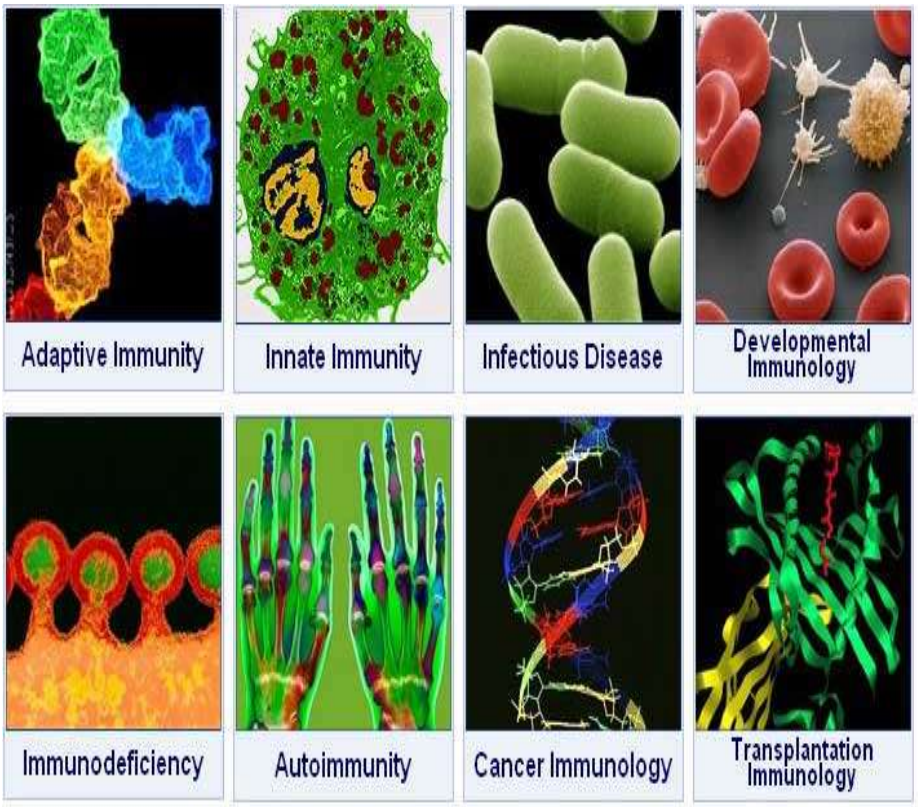
General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on-line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Unit 2 Clinical Immunology Unit(Subsidary unit)



Requirements

- **Credit points:** 2.4 credit point for didactic (lectures, seminars, tutorial) and 12 points for training, total : 14.4CP.It could be achieved at any time.

- Minimal rate of attendance 80% of training and didactics

Unit (Module)2

(Clinical Immunology Subsidiary unit)

Rotation / attendance proof

الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

2.4Clinical Immunology Lectures and tutorials subsidiary unit

Year 1,2,3&4

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical immunology	(1.5)CP	**Clinical Pathology**	**Basic Immunology**	62.5% of didactics unit
	(0.05)		**(0.5 hours)** **Antigen** - Feature of biologic Ag - Structure and chemical basis of antigenic Ag - Antigen recognition	2.1% of didactics unit
	(0.2)		**(2 hours)** **-Innate Immunity** Feature of innate immunity - Phagocytes and - cells of innate immunity - Circulating pattern recognition molecules and effector protein - Cytokines of innate immunity	8.33% of didactics unit
	0.2		**(2 hours)** **Complement:** - Pathways of complement activation - Receptors of complement - Regulation of complement - Function of complement	8.33% of didactics unit
Student signature			Principle coordinator signature	Head of the department signature

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical immunology	(0.2)	**Clinical Pathology**	**(2 hours)** **Adaptive Immunity** **-Subset of Lymphocytes** **- T- Lymphocytes** - Development of lymphocytes morphology and maturation -T cell receptor - CD 4 T lymphocytes - Activation of CD4 Lymphocytes - CD8 T lymphocytes	8.33% of didactics unit
	0.2		**(2 hours)** **- B- lymphocytes** - Development of lymphocytes, morphology and maturation	8.33% of didactics unit
	0.05		**0.5 hours)** **Natural killer cells** -Identification. -Development -functions	2.1% of didactics unit
	0.2		**(2 hours)** **Antibodies (Immunoglobulin)** - Structure - Types -Function - Immune response	8.33% of didactics unit
Student signature			Principle coordinator signature	Head of the department signature

Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical immunology	(0.2)	**Clinical Pathology**	**(2 hours)** **(Cytokines)** -General properties -Cytokines mediate and regulate innate Immunity. -Cytokines mediate and regulate adaptive immunity. -Cytokine stimulate Hematopoiesis.	8.33% of didactics unit
	(0.1)		**(1 hour)** **The major histocompatibiltiy complex** -Structure of MHC molecule -Binding of peptide to MHC molecule -Genomic organization of MHC molecules	4.17% of didactics unit
	(0.1)		**1 hour** **Immunological Tolerance** - T lymphocytes tolerance - B lymphocytes tolerance - Tolerance induced by foreign protein antigen	4.17% of didactics unit
	0.4		**Immune response and disorders**	16.6% of didactics unit
	0.2		**(2 hours)** **Clinical Immunology** **1-Hypersensitivity Types** -Type I immediate hypersensitivity - Type II antibody mediated hypersensitivity - Type III immune complex mediatedHypersensitivity - Type IV cell mediated hypersensitivity	8.33% of didactics unit
Student signature			**Principle coordinator signature**	**Head of the department signature**

Name of the UNIT	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical immunology	(0.1)	**Clinical Pathology**	**(1 hour)** **Immune response to viral, Bacterial, fungal and parasitic infections**	4.17% of didactics unit
	0.1		**(1 hour)** **Acquired immunodeficiency diseases** - Molecular and biologic features - Pathogenesis - Clinical features - Immune response - Diagnosis	4.17% of didactics unit
	0.4		**Clinical Immunology**	16.6% of didactics unit
	0.1		**(1 hour)** **Rheumatic Diseases** -Systemic lupus erythematosus -Rheumatoid arthritis	4.17% of didactics unit
Student signature			Principle coordinator signature	Head of the department signature

Name of the UNIT		Responsible department	Attendance	Percentage of Achieved points
Clinical immunology	0.1	**Clinical Pathology**	**(1 hour)** **Endocrine Diseases** -Type 1 (Insulin-dependent) Diabetes mellitus -Autoimmune thyroid disease	4.17% of didactics unit
	0.1		**(1hour)** **Liver Diseases** -autoimmune hepatitis. -Primary biliary cirrhosis.	4.17% of didactics unit
	0.1		**(1 hour)** **Hematological diseases.** -Autoimmune hemolytic anemia	4.17% of didactics unit
	0.1		**Formative assessment**	4.17% of didactics unit
	Student signature		Principle coordinator signature	Head of the department signature

12 Credit points Clinical training in Clinical Immunology (subsidiary unit)

At any time; Year 1 or 2or 3or4

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in clinical Immunology	12	Clinical Pathology	➢ Practice with for at least 2 months in the clinical immunology unit including perform and interpretation of different laboratory techniques ➢ Fulfilling Log of laboratory skills as mentioned below;	100%
	0.5		- Attend in unit for at least one hour/day -twice/week for two weeks)toPerform in Clinical Immunology lab. at least 10 times level A of - Specimen collection and transport, sample handling and storage in laboratory - Disposal of clinical waste and high risk s Samples	4.16% of unit training
	1.0		Attend in unit for at least Three hour /day two time/week for four weeks - Perform in clinical immunology laboratory at least 8 times level B& A of the following technique: **serological tests:** - Widal test - Malta test - RF, ASOT& CRP	8.33% of unit training
Student signature			Principle coordinator signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in clinical Immunology	1	Clinical Pathology	- Attend in unit for at least **three hour /day once/week for four weeks** to Perform in clinical immunology laboratory at least **4 times with level B& A** of the following technique: ANA by indirect immune fluorescent **techniques**	8.33% of unit training
	1		- Attend in unit for at least **three hour /day once /week for two week to** Perform in clinical immunology laboratory at least **2 times with level B& A** of the following techniques: ASMA, AMA & LKMA by indirect immune fluorescent technique	8.33% of unit training
	0.5		- Attend in unit for at least **three hours/day once/week for two week** To Perform in clinical immunology laboratory at least **2 times with level C&B** of the following technique: Anti-ds DNA**,** Anti-thyroid antibodies , Anti-cardiolipine and other autoantibodies by immunoassay techniques.	4.16% of unit training
	1		Perform in clinical immunology laboratory at least 4 times with level C&B of (analysis of the following serological test by immunoassay of ;Anti-HIV, Anti-HCV, HBsAg , Anti-HBsAg(AUSAB), HBeAg, Anti-HBeAg, Anti-cIgM, Anti-cIgG ,HAV-IgM and HAV-IgG, Rubella IgM, Rubella IgG, CMV IgM, CMV IgG, oxoplasma IgM and Toxoplasma IgG) with attendance three hours/day once /week for four weeks	8.33% of unit training
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in clinical Immunology	0.5	Clinical Pathology	Attend in lab for at least one hour /week for four weeks to Practice in principal of different methods for assay and interpretation the results of C3,C4, IgM,IgG, and IgA at least 4 times	4.16% of unit training
	2		Attend in lab for at least two hours/day for two weeks including practice interpretation of lab results at least 60 -80 results	16.66% of unit training
	2		➢ Attend for at least 3 weeks in the Outpatient clinic for four hours daily	16.66% of unit training
	2		➢ Attend for at least 3 weeks in the emergency laboratory four hours daily	16.66% of unit training
	0.5		➢ Formative assessment	4.16% of unit training
Student signature			Principle coordinator Signature	Head of the department signature

*** Level of competency**

A- Independent performance
B- Performance under supervision
C- Observed .

Management plan of the following clinical immunology Procedures log

Procedure	Number
Sample Handling- Specimen collection and transport - Sample handling and storage in laboratory - Disposal of clinical waste- High Risk Samples	**10**
Serological tests: Widal test, Malta test, RF, ASOT and CRP	**8**
Autoantibodies tests : ANA	**4**
Autoantibodies: ASMA, AMA and LKMA	**2**
Autoantibodies tests: Anti-ds DNA, Anti-thyroid antibodies, Anti-sperm antibodies and Anti-cardiolipine	**2**
Virological tests by Immunoassay: -Anti-HIV, Anti-HCV, HBsAg Anti-HBsAg(AUSAB), HBeAg, Anti-HBeAg, Anti-cIgM, Anti-cIgG ,HAV-IgM , HAV-IgG, Rubella IgM, Rubella IgG, CMV IgM, CMV IgG, oxoplasma IgM and Toxoplasma IgG	**4**
C3,C4, IgM,IgG, and IgA tests	**4**
Interpretation of lab Results	**60-80**

*** Level of competency**

A- Independent performance
B- Performance under supervision
C- Observed

Clinical Rotation, Immunology laboratory rotation

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Pathology Department
Faculty of Medicine

Clinical Rotation Immunology laboratory

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Emergency laboratory

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Quality control and Laboratory Safety

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Night Shift

Date	Signature of supervisor		Date	Signature of supervisor

Clinical Seminars log

Date	Attendance	Topic	Signature

Clinical Seminars log

Date	Attendance	Topic	Signature

Clinical Pathology Department
Faculty of Medicine

Clinical Seminars log book

Date	Attendance	Topic	Signature

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training*** ***From:***

To:

**** Site:***

****Rotation***

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

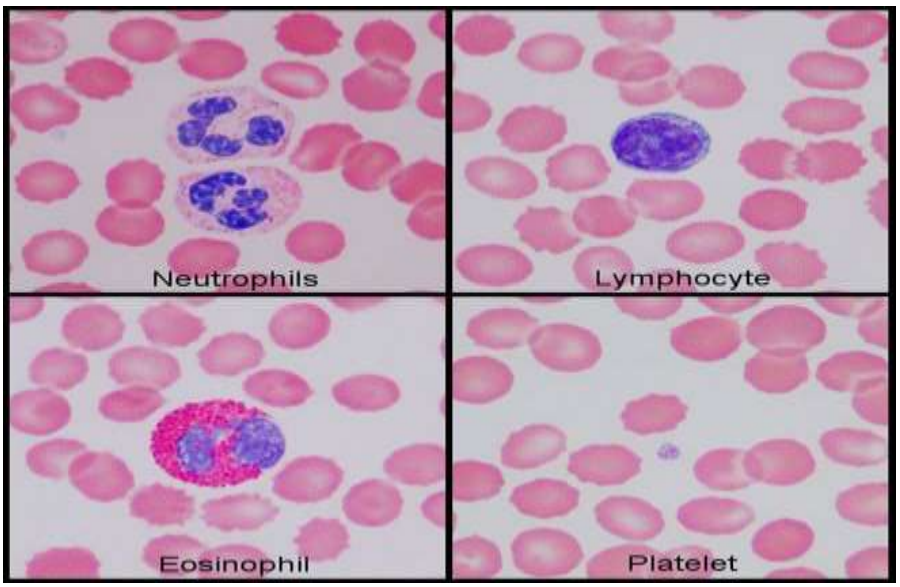
General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on-line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Clinical Pathology
Department
Faculty of Medicine

Unit 3: Clinical Hematology (Subsidary unit)



Requirements

- **Credit points:** 2.4 credit point for didactic (lectures, seminars, tutorial) and 12 point for training; total 14.4CP.It could be achieved at any time.

- Minimal rate of attendance 80% of training and didactic

Unit (Module)3
Hematology Subsidiary Unit)

Rotation / attendance proof

الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

2.4Credit Point Hematology Lectures and tutorials subsidiary unit

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical Hematology	**(0.2)** **0.1** **0.1**	**Clinical pathology**	**(2 hours)** **General Hematology** **1- Hematologic aspects of systemic diseases** **2- General aspects of hematologic malignancy**	8.33%of didactics unit 4.17% 4.17%
	(0.7) **0.2** **0.2** **0.1** **0.1** **0.1**		**(7 hours)** **Disorders of Red Cells** **1- Evaluation and Classification of Anemia** ** Macrocytic anemia ** Microcytic anemia **Normocytic Anemia **2-Pathogenesis and Classification of Hemolytic anemias** **3- Inherited and Acquired Aplastic Anemia Syndromes** **4- Pure Red Cell Aplasia** **5- Erythrocytosis**	29.1% of didactics unit 8.33% 8.33% 4.17% 4.17% 4.17%
	(0.6) **0.1**		**(6 hours)** **Leukocytes and Their Disorders** **1-Non-malignant Disorders of Leukocytes and the spleen**	25% of didactics unit 4.17%
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	ercentage of Achieved points
Hematology	**0.1**	**Clinical pathology**	**-Hematologic Malignancies**	4.17%
	0.1		*** Acute Leukemias**	
	0.1		*** Myelodysplastic Syndromes**	4.17%
	0.1		*** Myeloproliferative Disorders**	4.17%
	0.1		*** Lymphoproliferative Disorders**	4.17%
	0.1		*** Immunoproliferative Disorders**	4.17%
	(0.6)		**((6 hours)**	25.1% of didactics unit
			Disorders of Hemostasis	
	0.1		**1- Diagnostic Approach to the Bleeding Disorders**	
	0.1		**2- Bleeding Disorders Caused by Vascular Abnormalities**	4.17%
	0.1		**3- Bleeding Disorders Caused by Platelet Abnormalities**	4.17%
	0.1		**4- Inherited and Acquired Coagulation Disorders**	4.17%
	0.1		**5- Fibrinolysis and its disorders**	4.17%
	0.1		**6- Antithrombotic Therapy**	4.17%
Student signature			Principle coordinator signature	Head of the department signature

Name of the unit	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical Hematology	**(0.3)**	**Clinical pathology**	**-3 hours) Transfusion Therapy**	12.5% of didactics unit
	0.1		**1- Blood Donation and Collection**	4.17%
	0.1		**2- Use of Blood Components**	4.17%
	0.1		**3- Adverse Effects of Blood Transfusion**	4.17%
Student signature			Principle coordinator signature	Head of the department signature

12 Credit points Clinical training in clinical Hematology At any time

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical hematology(continued)	(12)CP	Clinical Pathology		100% of unit training
	1.5		➢ Practice with clinical cases for at least 2h/2day – twice /weekly/2 months in the hematology unit including perform and interpretation of different laboratory techniques especially related to red cell disorders including; ➢ Log of laboratory skills as mentioned below; -Perform the following laboratory technique related to Disorders of Red Cells in hematology unit including: 1) Serum iron and TIBC. 2) Osmotic fragility test. 3) Screening test for G6PD deficiency. 4) Sickling test. **At least 4 times with (Level B & A with** attendance two hours /day once/week for 4 weeks). 5)Hb F &A2 estimation 6)Hb electrophoresis at least 2 times with (Level B & A with attendance of 1-2 hours/day twice /week for 2weeks) During the shift time	12.5% of unit training
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical hematology (continued)	1	**Clinical pathology**	7)Erythropoietin assay. -Study the principal and interpretation the of reported data Erythropoietin levels at least **4 times with attendance once/week for 4 weeks).). During the shift time** -Interpretation of the result related to red cell disorders at least **80-100, with attendance 2hours/days for four weeks** daily	8.33% of unit training
	1.5		-Attend in lab and Perform the following laboratory techniques related to Disorders of Hemostasis in hemostasis lab : i.e.screening tests of hemostasis: (Bleeding time, PT& INR,- PTT and thrombin Time) with attendance two hours /day twice /week for four weeks At least 8 times with level B&A. - Perform the following laboratory techniques: Fibrinogen assay,- FDA, coagulation factors and vWF assay with attendance two hours /day once/week for 2weeks). at least 2 times with (Level C, B & A - Perform the following test: platelet function tests, investigations of thrombophilia. at least 2 times with (Level C, B & A with attendance two hours/day once /week for 2weeks). - Interpretation of the result related to Hemostasis 20 times with two hours/days for 4 wks	12.5% of unit training
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical hematology(continued)	1.0		**-Attend and practice in lab for at least 1h/day-3times/wk for 2wk.** **As well as** Perform in blood banking unit at least **6 times with level A of the following techniques:** **-** ABO grouping , RH typing, - Cross matching and Coomb's test	8.33% of unit training
			-Attend and practice in lab for at least 3h/day-twice/wk for 2wk. **as well as** Perform in transfusion therapy and blood banking units at least 2 times with level C&B of the following techniques: **Ab screening & Identification** **- Storage of blood** **blood transfusion** 1**- Red cell wash** **2- Separation of components by Manual and automated technique**	8.33% of unit training
			-Attend and practice in lab for at least 2h/day-once/wk for2wks. **as well as** Perform Myeloperoxidase, Sudan black, PAS ,NAP ,Acid Phosphatase **at least, 2 times with (Level C& B for of each) with attendance 2 hours/day with once /week for 2weeks).** -Practice for at least once/wk for 2wk and Perform immunophenotyping of leukemia and lymphoprolifrative disorders in flow cytometry **l**aboratory at least 2 times with (Level C& B . - **Attend and practice in lab for at least 3h/day- once/wk for 4wk including** Interpretation 60-80 of the result Disorders of Leukocytes and the spleen .	8.33% of unit training
Student signature			Principle coordinator signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	ercentage of Achieved points
Clinical hematology(continued)	4		➢ Attendance of at least 4 hours/day for 4 weeks in Blood Bank	33.33% of unit training
	0.5		➢ Apply quality control and laboratory safety for at least 2 hours /week/ for 15 week	4.17% of unit training
	0.5		➢ Formative assessment for at least two time/year	4.17% of unit training
Student signature				Head of the department signature

Level of competency

A- Independent performance
B- Performance under supervision
C- Observed

Management plan of the following hematological Procedures log Year 1or2,3&4

Procedure	Number
Serum iron and TIBC.	4
Osmotic fragility test.	4
Screening test for G6PD deficiency.	4
Sickling test.	4
Hb F &A2 estimation	2
Hb electrophoresis	2
interpretation the result of Erythropoietin	4
Interpretation of the result related to red cell disorders	80-100
screening tests of hemostasis: - Bleeding time, PT& INR,- PTT and thrombin Time	8
Fibrinogen assay,- FDA, coagulation factors and vWF assay	2
investigations of thrombophilia	2
Interpretation of the result of the disorders of hemostasis	20
Cytochemical staining : Myeloperoxidase, Sudan black, PAS ,NAP ,Acid Phosphatase	2
immunophenotyping of leukemia and lymphoprolifrative	2
Interpretation of the result disorders of Leukocytes and the spleen	60
ABO grouping: RH typing , cross matching and Comb's test	6
Ab screening & Identification: -Storage of blood, blood transfusion, Red cell wash and Separation of components Manual and automated	2

Clinical Rotation in Hematology laboratory

Duration from -to	Location	Signature of supervisor		Duration from –to	Location	Signature of supervisor

Clinical Rotation in Blood Bank

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Laboratory skills in Blood Bank and transfusion medicine

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in anemia laboratory

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in Hemostasis laboratory

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in cytochemistry laboratory

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in flow cytometry laboratory

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

laboratory skills in lab safety and quality control

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

- Clinical Seminars log

Date	Attendance	Topic	Signature

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Post graduate teaching

Date	Title of Tutorial	Signature of Staff member

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training From:***

To:

**** Site:***

****Rotation***

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on-line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Unit 4; Clinical Microbiology(subsidary unit)

Requirements

- **Credit points:** 2.4 credit point for didactic (lectures, seminars, tutorial) and 12 point for training, total 14.4CP.It could be achieved at any time.

- Minimal rate of attendance 80% of training and didactic

Unit (Module)4

(Clinical Microbiology Subsidiary unit)

Rotation / attendance proof

الأماكن التى تدرب بها

أسم المستشفى التى تدرب بها	توقيع رئيس القسم	توقيع مدير المستشفى

2.4 Credit Point Microbiology Lectures and tutorials Subsidiary unit

Year 1,2,3&4 or collectiviely according to rotation(at any time)

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical microbiology -	0. 4 (0.2) (0.2)	Clinical Pathology	**General microbiology:4h** - Processing of samples& Rejection of samples -Antibiotic groups & drug resistant	16.66%of didactics unit 8.3% 8.3%
	0.5 (0.25) (0.25)		**Medical mycology:5h** -Superficial , cutaneous Mycosis & Subcutaneous mycosis -Systemic mycosis	20.83% of didactics unit 10.41% 10.41%
	0.5 (0.25) (0.25)		**Medical virology:5h** -Respiratory viruses -Hepatitis viruses	20.83% of didactics unit 10.41% 10.41%
	1.0 0.125 0. 125 0. 125 0. 125 0. 125 0.125 0.125 0.125		**Clinical microbiology:10h** -Pyrexia of unknown origin -Septicemia and bacteremia -Upper and lower resp. tract infections ,Ear and eye infections -GIT infections -Genitourinary tract infections - Sexually transmitted dis. -Nosocomial infection and infection	41.66% of didactics unit 5.2% 5.2% 5.2% 5.2% 5.2% 5.2% 5.2% 5.2%
Student signature				**Principle coordinator signature**

12Credit points Clinical training in Clinical Microbiology (subsidiary unit)at any time

Clinical training	Credit points	Responsible department	Attendance	
Clinical training **Clinical Microbiology**	12	Clinical Pathology	➢ Practice with at least 2 months in the clinical microbiology unit including ; ➢ perform and interpretation of different laboratory techniques ➢ fulfilling Log of laboratory skills as mentioned below;	100% of training unit
	0.5		- Attend in lab for at least **1 hour / day -twice /weekly for 4 weeks** as well as Practice and Perform in clinical microbiology lab at least 8 times with level A of the following; - Sampling and Specimen: Collection of: Blood, Urine, Pus, Sputum, Stool and biological fluid including; -Techniques -Precautions - Container	4.16% of training unit
	1.0		Attend in lab for at least **2 hours / day -once /week for 3 weeks** as well as Practice and Prepare in clinical microbiology laboratory at least 3 times with level C,B& A in preparation of the following types of media: -Neutrient -Blood -Chocolate -MacConkey -Manittol- salt -Eosin Methylene Blue	8.33% of training unit
Student signature			Principle coordinator signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
clinical microbiology(continued)	1	Clinical pathology	-Attend in lab for at least **2 hour / day -once /week for 4 weeks** as well as Practice and Perform in clinical microbiology laboratory at least **4 times with level B& A in Staining procedures:** -Gram stain -Ziehl-Neelsen stain	8.33% of training unit
	0.5		Attend in lab for at least **2 hours / day -once /week for 4 weeks** and Perform in clinical microbiology laboratory at least **4times of the following;** - Transportation and Processing of Specimens and culture of Blood, Urine, Pus, Sputum, Stool and biological fluids Stool and Biological fluid	4.16% of training unit
	0.5		Attend in lab for at least **2 hour s/ day -once /week for 2weeks** and Perform in clinical microbiology laboratory at least **2 times with level B& A ,**Culture of anaerobes; i.e. -Techniques -Precautions - Containers	4.16% of training unit
	1		- Attend in lab for at least **3hours / day for 4 weeks** and Perform in clinical microbiology laboratory at least **4 times with level C&B** microbiological techniques in tuberculosis: - Direct smear microscopy -Z-N preparation -Culture on L-J -Identification of strains -Interpretation -Drug susceptibility	8.33% of training unit
Student signature			Principle coordinator Signature	Head of the department signature

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
clinical microbiology(continued)	0.5	Clinical pathology	-Attend in lab for at least 1h/day for 4wks and Practice in clinical microbiology laboratory at least **4times with level C&B** with different microbiological analyzer Microscan Bactic blood culture .	4.16% of training unit
	0.5		- Attend in lab for at least **2hours / day- weekly for 4 weeks** and Perform in clinical microbiology laboratory at **least 4 times with level C,B&A** Antibiogram test .	4.16% of training unit
	0.5		-Attend in lab for at least **2hours / day- weekly for 4 weeks** and Perform in clinical microbiology laboratory at least 4 times with level C,B&A complete urine and stool .	4.17% of training unit
	1		Attend in lab for at least **2hours / day-** weekly for 2 weeks and practice Interpretation of lab results at least 60 -80 results	8.33% of training unit
	4		➢ Attend at least 4h/day for 2weeks(14days) in the Outpatient clinic lab	16.66% of training unit
	0.5		➢ Attend for at least 2 hours /week/ for 15 week and Apply quality control and laboratory safety	4.17% of training unit
	0.5		➢ Formative assessment	4.16% of training unit
Student signature			Principle coordinator Signature	Head of the department signature

Management plan of the following Microbiological Procedures log

At any time year 1

Procedure	Number
Sampling and specimen collection of: Blood, Urine, Pus, Sputum, Stool and biological fluid –Techniques -Precautions - Container	10
Preparation of the following types of media: Neutrient, Blood,- Chocolate, MacConkey, Manittol- salt-Eosin Methylene Blue	3
Staining procedures:-Gram stain andZiehl-Neelsen stain	4
Culture of anaerobes -Techniques, Precautions and Containers	4
Transportation and Processing of Specimens: Blood, Urine, Pus, Sputum, Stool and biological fluids, Stool and Biological fluid	4
microbiological techniques in tuberculosis: - Direct smear microscopy, Z-N preparation, Culture on L-J, Identification of strains Interpretation and Drug susceptibility	2
Microbiological analyzer Microscan and Bactic blood culture	4
Antibiogram test	4
complete urine and stool analysis	4
Interpretation of lab results at leas	60-80

Clinical Rotation in clinical Microbiology Laboratory

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation Tuberculosis laboratory

Duration from -to	Location	Signature of supervisor		Duration from -to	Location	Signature of supervisor

Clinical Rotation in Emergency Laboratory

Date/ Duration from -to	Signature of supervisor		Date/ Duration from -to	Signature of supervisor

Quality control and Laboratory Safety

Date	Signature of supervisor		Date	Signature of supervisor

Clinical Seminars log

Date	Attendance	Topic	Signature

Post graduate teaching

Date	Title of lecture	Signature of Staff member

Laboratory skills in Clinical Microbiology Laboratory

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in Tuberculosis Laboratory

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Laboratory skills in quality control and laboratory safty

H.N	Laboratory procedures and Techniques	Level of participation *	Location	Signature of supervisor

* Level of participation
A- Plan and carry out
B- Carry out
C- Carry out under supervision

Postgraduate student's program
Rotation in training assessment

**** Name:***

**** Period of training*** ***From:***

To:

**** Site:***

****Rotation***

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Demonstrate the competency of continuous evaluation of different types of care provision to patients in the different area of his field.								
Appraise scientific evidence.								
Continuously improve patient care based on constant self-evaluation and life long learning.								
Participate in clinical audit and research projects.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Practice skills of evidence-based Medicine (EBM).								
Educate and evaluate students, residents and other health professionals.								
Design logbooks.								
Design clinical guidelines and standard protocols of management.								
Appraise evidence from scientific studies related to the patients' health problems.								
Apply knowledge of study designs and statistical methods to the appraisal of clinical studies.								
Use information technology to manage information, access on-line medical information; for the important topics.								
Master interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals, including:- • Present a case. • Write a consultation note. • Inform patients of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible medical records. • Teamwork skills.								

General skills	could not judge (0)	Strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Create and sustain a therapeutic and ethically sound relationship with patients.								
Elicit and provide information using effective nonverbal, explanatory, questioning, and writing skills.								
Work effectively with others as a member or leader of a health care team or other professional group.								
Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.								
Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.								
Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.								
Work effectively in health care delivery settings and systems related to specialty including good administrative and time management.								
Practice cost-effective healthcare and resource allocation that does not compromise quality of care.								

General skills	could not judge (0)	strongly disagree(1)	(2)	(3)	(4)	(5)	(6)	strongly agree (7)
Advocate for quality patient care and assist patients in dealing with system complexities.								
Design, monitor and evaluate specification of under and post graduate courses and programs.								
Act as a chair man for scientific meetings including time management								

Elective Course 1

Requirements

- **Credit points:** 1.5 credit point.

- Minimal rate of attendance 80% of lectures and 80% of training

One of these courses will be chosen

- Advanced medical statistics.
- Evidence based medicine.
- Advanced infection control.
- Quality assurance of medical education.
- Quality assurance of clinical practice.
- -Hospital management

Clinical Pathology Department
Faculty of Medicine

Name of the elective course: ----------

Elective Course Lectures

Date	Attendance	Topic	Signature

Elective Course Practical skills

Date	Attendance	Topic	Signature

Elective Course 2

Requirements

- **Credit points:** 1.5 credit point.

- Minimal rate of attendance 80% of lectures and 80% of training

One of these courses will be chosen

- Advanced medical statistics.
- Evidence based medicine.
- Advanced infection control.
- Quality assurance of medical education.
- Quality assurance of clinical practice.
- -Hospital management

Name of the elective course: ----------

Elective Course Lectures

Date	Attendance	Topic	Signature

Elective Course Practical skills

Date	Attendance	Topic	Signature

Other scientific activities

Lecture, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Other scientific activities

Lecture, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

** Your role:-
A- Attendance
B- Organization
C- Presentation

Formative assessment and MCQ

Exam	Score	Grade*	Date	Signature

*Degree
A- Excellent
B- Very good
C- Good
D- Pass

Formative assessment and MCQ

Exam	Score	Grade*	Date	Signature

*Degree
A- Excellent
B- Very good
C- Good
D- Pass

Formative assessment and MCQ

Exam	Score	Grade*	Date	Signature

*Degree
A- Excellent
B- Very good
C- Good
D- Pass

الرسائل العلمية

عنوان الرسالة

عربـــــــــــــــــــي :

انجلـــــــــــــــــــيزي :

المشرفـــــــــــــــون :

1- .....
2- .....
3 .....
4- .....

تاريخ القيــد لدرجــة : ..... / /

تاريخ التسجيل الموضوع: .....

المتابعة الدوريـــــــــة : .....

التاريخ	ما تم انجازه من بروتوكول البحث	المتبقي	توقيع المشرفين

Declaration

Course Structure Mirror	Responsible (Course) Coordinator Name:	Signature	Date
First Part			
-Course 1: Medical statistics.			
-Course 2: Research methodology.			
-Course 3: Medicolegal Aspects and Ethics in Medical Practice and Scientific Research.			
-Course 4: Cytogenetics .			
-Course 5: Molecular Biology			
-Course 6: Instrumentation and Equipments.			
Second Part			
Course 7: Clinical Pathology			
Module 1 clinical chemistry.			
Module 2 Clinical immunology.			
Module 3 clinical Hematology..			
Module 4 Clinical Microbiology.			
- Elective Course (1) Certificate Dates:			
- Elective Course (2) Certificate Dates:			
- M. D. Thesis Acceptance Date:			
- Fulfillment of required credit points prior to final examination			
Clinical Pathology M.D. Degree Principle Coordinator:			
Date approved by Clinical Pathology Department Council:			

يعتمد ،

رئيس القسم

أ.د/

Clinical Pathology
Department
Faculty of Medicine

كراســــــــــة الأنشـــــــطة

اللازمة لحصول الطبيب المقيم علي درجة الدكتوراة في

الباثولوجيا الأكلينيكية(التخصص الدقيق: الكيمياء الاكلينيكية)

2016-2017
