



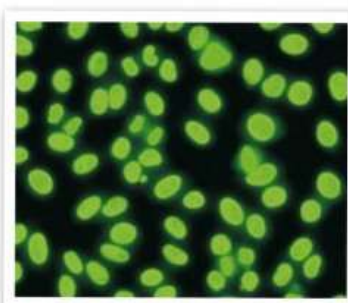
**Clinical Pathology
Department
Faculty of Medicine**

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

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
 GradeMSc... University
 Grade
 Grade of Internal Medicine course on graduation
 Others...../...../..... University
/...../..... University



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*** 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.



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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
- Quiseses



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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 candidates 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



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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 courses before 4 years from applying to the MD degree.

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



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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	
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**Medzcal Statistics
Lectures and tutorials**

Date	Attendance	Topic	Signature



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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	-
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**Research Methodology
Lectures and tutorials**

Date	Attendance	Topic	Signature



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Course 3

Medicolegal Aspects and

Ethics in Medical Practice and Scientific Research

Requirements

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



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**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		Ethics in research	50%
	0.5		Medical ethics in practice.	50%
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**Medicolegal Aspects and Ethics in Medical Practice and Scientific
Lectures and tutorials**

Date	Attendance	Topic	Signature



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Course 4 Cytogenetics

Requirements

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



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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%
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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%
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2.0 Credit Point for Cytogenetics Lectures and tutorials

Date	Attendance	Topic	Signature



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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.**



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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%
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Name of the course	Credit points	Responsible department	Attendance	Percentage of achieved points
Molecular Biology	0.2	Clinical pathology	(2hours) Importance of molecular biology techniques in laboratory diagnosis	13.33%
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1.5CP for didactic teaching (lectures and tutorials)

Date	Attendance	Topic	Signature



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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%



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			<p>*Interpret and comment on the results of the following laboratory techniques at least 5 times for each:</p> <ul style="list-style-type: none">-Southern blotting.- Northern blotting.- Western blotting.- Gel shift assay.- DNA sequencing.- DNA foot printing.	
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0.5 Credit Point Molecular Biology Practical Training

Date	Attendance	Topic	Signature

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



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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



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Course 6

Instrumentation and Equipments

Requirements

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



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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) <i>Optical Techniques: 1h for each;</i>	(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-Chemiluminescence, Bioluminescence 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%
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Name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Instrumentation and Equipments	0.1CP	Clinical Pathology	(1 hours) 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 hours) 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-Integrated 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%
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name of the course	Credit points	Responsible department	Attendance	Percentage of Achieved points
Instrumentation and Equipments		Clinical Pathology	9-Other areas of automation <i>continued</i>; Nucleic acid analyzers: - Microbiological analyzers - Microtiter plate systems. - Automated pipetting Stations. - POCT analyzers.	
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3.0 Credit Point Instrumentation and Equipments Lectures and Tutorials

Date	Attendance	Topic	Signature



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

يعتمد
رئيس القسم
أ.د.



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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 Hematology (main unit or module)**
- 2- **Module 2 Clinical Chemistry (subsidiary unit or module)**
- 3- **Module 3 Clinical Immunology (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 Chemistry, -Clinical Immunology and - Clinical Microbiology	29.4	At any time*(1,2,3,4)	<u>7.2</u> 2.4 2.4 2.4	<u>36</u> 12 12 12	<u>43.2</u> 14.4 14.4 14.4
II-Main unit (module) - Hematology	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 all over 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.

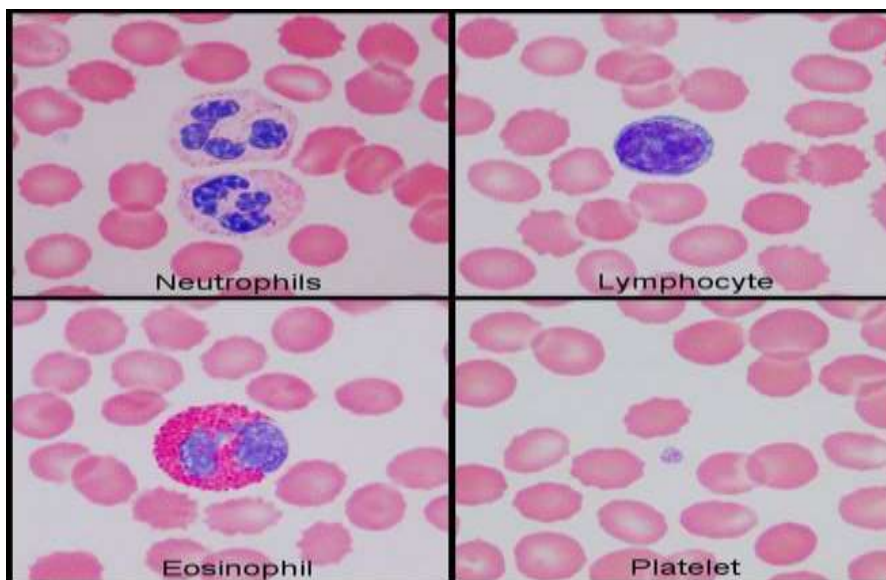


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Unit 1; Hematology (main unit)





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Requirements

- **Credit points:** 16.8 credit point for didactic (lectures, seminars, tutorial) and 87 point for training.
- **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
<ul style="list-style-type: none"> ● Main unit (module) Hematology 	70.6	1,2,3,4	16.8	87	103.8
<ul style="list-style-type: none"> ● (General hematology and transfusion therapy and blood component). 	12.38	1	3.2	15	18.2
<ul style="list-style-type: none"> ● Disorders of Red Cells 	19.45	2	4.6	24	28.6
<ul style="list-style-type: none"> ● Disorders of Hemostasis 	19.38	3	4.5	24	28.5
<ul style="list-style-type: none"> ● Disorders of Leukocytes and the spleen 	19.38	4	4.5	24	28.5



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(Module)1

(Hematology Main unit)

Rotation / attendance proof

الأماكن التي تدرب بها

توقيع مدير المستشفى	توقيع رئيس القسم	أسم المستشفى التي تدرب بها



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3.2 Credit points for Hematology Lectures and tutorials Main unit Year 1

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology	(1 CP)	Clinical Pathology	(10 hours) General Hematology (2h for each topic) 1- Hematologic aspects of systemic diseases 2- Cell Biology - Apoptosis and cycle - Cell regulation - Signal transduction 3- Stem cells, progenitor cells and cytokines 4- General aspects of Hematologic malignancy 5- Bone marrow transplantation	31.25% of didactics unit in this year 6.25% of <i>didactics</i> unit in year
	0.2			6.25% of <i>didactics</i> unit in year
	0.2			6.25% of <i>didactics</i> unit in year
	0.2			6.25% of <i>didactics</i> unit in year
	0.2			6.25% of <i>didactics</i> unit in year
	0.2		6.25% of <i>didactics</i> unit in year	
	(1.9)CP		Transfusion Therapy(19 hours)	(67.2%) of didactics unit in year1
0.2CP	1- Red Cell immunohematology - Red Blood Cell Antigens - Red Cell Blood Group Systems.	6.25% of didactics unit in this year		
0.45CP	2- Blood Donation and Collection * Blood Component Separation * Blood Component Modification: - Leukocyte Reduction	14.1% of didactics unit in this year		



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			- Washed Products - Irradiation of Blood Products - Pathogen inactivation	
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Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology (continued year 1)	<u>1.25CP</u> 0.25CP for each topic	Clinical Pathology	<p>3- Use of Blood Components(2.5h) * Autologous Blood Donation, Directed Donations * Red Cell Transfusion *Platelet Transfusion * Granulocyte Transfusions * Plasma Components for Transfusion.</p> <p>4- Stem cell transfusion therapy2.5h.</p> <p>5- Adverse Effects of Blood Transfusion 2.5h.</p> <p>6- Therapeutic Plasma Exchange 2.5h.</p> <p>7- Antenatal serology and hemolytic disease of new born 2.5h.</p>	39.1% didactics unit in this year1
	0.3CP		- Formative assessment	9.4% of didactics unit
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15 Credit points Clinical training in Hematology Year (1)

Clinical training	Credit points	Responsible department	Attendance & activities	Percentage of Achieved points
Clinical training of Hematology in hematology unit and Blood Bank	15CP	Clinical Pathology	<ul style="list-style-type: none"> ➤ Practice with for at least 2 months in the hematology unit in blood bank and blood performance and interpretation of different laboratory techniques ➤ Log of laboratory skills as mentioned below; 	100% training unit in year 1
	4CP		-Attend in blood banking at least one hours /day six times/week for 4 weeks To perform at least 30 times with level A of the following technique: <ul style="list-style-type: none"> - ABO grouping - RH typing - Cross matching - Coomb's test 	26.6% training unit in year 1
	1CP		-Attend in transfusion therapy and blood banking lab. for at least two hours /week - once for two weeks to perform at least 4 times with level C,B&A of the following techniques: <ul style="list-style-type: none"> *Ab screening & Identification *Storage of blood *blood Preparation: <ol style="list-style-type: none"> 1- Red cell wash 2- Separation of component including Manual and automated techniques for at least 3h/day once/week for four weeks 	6.66% training unit in year 1
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Clinical training	Credit points	Responsible department	Attendance & Activities	Percentage of Achieved points
Clinical training in year1 in hematology unit and Blood Bank(<i>continued</i>)	2CP	Clinical Pathology	➤ Attend Night shift (From 2 pm to 8 am) at least 15 night shift -one shift/week for 15 weeks	13.33% of training unit in year 1
	2CP		➤ Attendance of at least 3 -4 hours/days for four weeks in clinical chemistry laboratory	13.33% of training unit in year 1
	2CP		➤ Attendance of at least 3 -4 hours/days for four weeks in Microbiology laboratory	13.33% of training unit in year 1
	2CP		➤ Attendance of at least 3 -4 hours/days for four weeks in Immunology laboratory	13.33% of training unit in year 1
	1CP		➤ Attendance of at least 2 hours/days for four weeks in hematology lab.	13.33% of training unit in year 1
	0.5CP		➤ Apply quality control and lab safety in Blood Bank unit for at least (1 hours/day for 15 week)	3.33% of training unit in year 1
	0.5CP		➤ Formative assessment	3.33% of training unit in year 1
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Level of competency*

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



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Management plan of the following Blood Bank Procedures log Year 1

Procedure*	Number
ABO grouping: RH typing , cross matching and Comb's test	30
Ab screening & Identification: -Storage of blood, blood transfusion, Red cell wash and Separation of components Manual and automated	4

* Required Level of competence is mentioned above in clinical training.



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4.6 Credit points for Hematology Lectures and tutorials Year 2

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology (continued)	(4.6)CP	Clinical pathology	(4.6hours)	100% of didactics unit in year 2
	0.19CP		Disorders of Red Cells 1- Evaluation and Classification of Anemia <u>** Macrocytic anemia</u> - Megaloblastic anemias - Non-megaloblastic macrocytic anemias	4.13% of didactics unit in year2
	0.19CP		<u>** Microcytic anemia</u> - Iron pathway disorders - Disorders of hemoglobin synthesis - Sideroblastic anemias: • Hereditary/Congenital Sideroblastic Anemias • Acquired Clonal Sideroblastic Anemia	4.13% of didactics unit in year2
	0.19CP		<u>** Normocytic Anemia</u>	4.13% of didactics unit in year2
	0.1CP		<u>2- Pathogenesis and Classification of Hemolytic anemia</u> - Congenital Hemolytic Anemia.	2.17% of didactics unit year2
	0.1CP		- Acquired Hemolytic Anemia.	2.17% of didactics unit year2
	0.1CP		- Destruction of Erythrocytes.	2.17% of didactics unit year2
	0.1CP		- Mechanisms and Site of Red Cell Destruction.	2.17% of didactics unit year2
	0.19CP		* <u>Hereditary Spherocytosis, Hereditary Elliptocytosis, and Other Disorders Associated with Abnormalities of the Erythrocyte Membrane</u>	4.13% of didactics unit in year2
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Department

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology (continued)	0.19CP	Clinical Pathology	* Hereditary Hemolytic Anemias Due to Red Blood Cell Enzyme Disorders	4.13% of didactics unit in year2
	0.19CP		* Autoimmune Hemolytic Anemia	4.13% of didactics unit in year2
	0.19CP		* Alloimmune Hemolytic Disease	4.13% of didactics unit in year2
	0.19CP		* Acquired Non-immune Hemolytic Disorders	4.13% of didactics unit in year2
	0.38CP		* <u>Hereditary Disorders of Hemoglobin</u> Structure and Synthesis - Sickle Cell Anemia and Other Sickling Syndromes - Thalassemias and Related Disorders	8.3% of didactics unit in year2
	0.19CP		2) Quantitative Disorders of Hemoglobin Synthesis - Hemoglobins with Altered Oxygen Affinity, Unstable Hemoglobins, M-Hemoglobins, and Dyshemoglobinemias	4.13% of didactics unit in year2
	0.19CP		* Inherited Aplastic Anemia Syndromes (e.g. Fanconi Anemia) * Acquired Aplastic Anemia	4.13% of didactics unit year2
	0.19CP		* Adult Pure Red Cell Aplasia , Diamond-Blackfan Anemia.	4.13% of didactics unit in year2
	0.19CP		* Porphyria	4.13% of didactics unit in year2
	0.19CP			4.13% of didactics unit year2
	Student signature		Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Name of the Unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology (continued)	0.19CP	Clinical Pathology	-* Hemochromatosis	4.13%
	0.19CP		-Iron Overload.	of <i>didactics</i> unit in year2
	0.19CP		Iron Overload	4.13%
	0.19CP		* Paroxysmal Nocturnal Hemoglobinuria	of <i>didactics</i> unit in year2
	0.19CP		* Congenital Dyserythropoietic Anemias	4.13%
	0.19CP		* Anemias Secondary to Chronic Disease and Systemic Disorders	of <i>didactics</i> unit in year2
	0.19CP		* Anemias During Pregnancy and the Postpartum Period	4.13%
	0.19CP		* Neonatal Anemia	of <i>didactics</i> unit in year2
			3- Erythrocytosis	4.13%
				of <i>didactics</i> unit in year2
	0.21CP		Formative assessment	4.6% of <i>didactics</i> in year 2
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

24 Credit points Clinical training in Hematology Year 2

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	(24CP)	Clinical Pathology	<ul style="list-style-type: none"> ➤ Practice with clinical cases for at least 6 months in the hematology unit including performance and interpretation of different laboratory techniques especially related to red cell disorders ➤ Fulfilling required Log of laboratory skills as mentioned below; 	100% of unit Clinical training in year 2
	4cp		<p>Attend and practice in lab for at least three hours /day three time/week for 6 weeks) to;</p> <p>a -Perform in hematology laboratory techniques related to Disorders of Red Cells in hematology unit for at least 12 times of Level B & A , including the following:</p> <ol style="list-style-type: none"> 1) Serum iron and TIBC. 2) Osmotic fragility test. 3) Screening test for G6PD deficiency. 4) Sickling test. <p>b-Perform at least 6 times with Level B & A of the following techniques with attendance in lab for at least three hours /day once/week for 6weeks).</p> <ol style="list-style-type: none"> 5) Hb F & A2 estimation 	16.66 of unit Clinical training in year 2



Faculty of Medicine



**Clinical Pathology
Department**

			6) Hb electrophoresis	
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Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	1CP	Clinical pathology	-Attend and practice in lab for at least one hour/day- twice /week for 4weeks) to Perform; *the study of Erythropoietin assay, principal and interpretation the of reported data related to Erythropoietin levels	4.17% unit Clinical training in year 2
	2CP		Attend and practice in hematology laboratory at least 2hours/day twice /week for 8 weeks to practice interpretation of results related to red cell disorders at least 200 times	8.33% unit Clinical training in year 2
	1CP		-Attend and practice in hematology laboratory ; at least one hour/day for 2 weeks)to; .-Perform the following laboratory technique related to Disorders of Hemostasis in hemostasis lab : *screening tests of hemostasis: i.e. (Bleeding time, PT& INR,- PTT and thrombin Time) for at least 30 times with Level A .-Attend and practice in hematology laboratory at least two hours/day - twice /week for 2weeks)to; - Perform the following laboratory techniques: *Fibrinogen assay, - *FDA,	4.17% unit Clinical training in year 2
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Faculty of Medicine



**Clinical Pathology
Department**

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank <i>(continued)</i>		Clinical pathology	coagulation factors and vWF assay at least 2 times with level B&A -Attend and practice in hematology laboratory at least Three hours/day - once /week for 2weeks) to Perform the following test: platelet function tests, investigations of thrombophilia. At least 2times with Level C, B & A) including Interpretation of the result related to Hemostasis at least 20 times with attendance one hour /day for 8 weeks during practice.	
	1CP		Attend and practice in hematology laboratory at least Three hours /day Once/week for four weeks to Perform in blood banking unit at least 5 times with level A of the following techniques: - ABO grouping - RH typing - Cross matching - Coomb's test	4.17% unit Clinical training in year 2
	1CP		Attend and practice in hematology laboratory at least Three hours daily for one week to Perform in transfusion therapy and blood banking units at least 2 times with level A of the following techniques: -Ab screening & Identification - Storage of blood -Preparation of blood components. 1- Red cell wash 2- Separation of components by Manual and automated techniques.	4.17% unit Clinical training in year 2
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical training hematology and Blood Bank	1CP	Clinical pathology	Attend and practice in hematology laboratory at least three hours/day once/week for 2weeks) to; a-Perform Myeloperoxidase, Sudan black, PAS ,NAP ,Acid Phosphatase ,for at least 2 times with Level C, B & A b-Perform immunophenotyping of leukemia and lymphoproliferative disorders in flowcytometry laboratory with 2 times of Level C, B & A, including; Interpretation of the result Disorders of Leukocytes and the spleen for at least30 times,with attendance of at least 3 times (daily one hour /day) for two weeks.	4.17% unit Clinical training in year 2
	1CP		-Attend and practice in hematology laboratory at least one hour /day -twicely /week for four weeks). including study the principal and interpretation the results	4.17% unit Clinical training in year 2
	5CP		➤ Attend night shift (From 2 pm to 8 am) at least 30 night shift, as one shift night /week for 30weeks	20.83% unit Clinical training in year 2
	2CP		Attendance of at least 30% of clinical consultation in laboratory round at out patient clinic for at least three times /week as 1hour/day for 20 wks	8.33% unit Clinical training in year 2
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical training hematology and Blood Bank	2CP	Clinical pathology	➤ Attendance of at least 4 hours/day for 4 weeks in Emergency laboratory unit	8.33% unit Clinical training in year 2
	1CP		➤ Apply quality control and laboratory safety 2 hours /week/ for 15 weeks	4.17% unit Clinical training in year 2
	1CP		➤ Attend Clinical teaching as 2 hours /week/ for at least 16 weeks	4.17% unit Clinical training in year 2
	1CP		➤ Formative assessment two time/year	4.17% unit Clinical 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



Faculty of Medicine



Clinical Pathology
Department

Management plan of the following hematological Procedures log Year 2

Procedure	Number
Serum iron and TIBC.	12
Osmotic fragility test.	12
Screening test for G6PD deficiency.	12
Sickling test.	12
Hb F & A2 estimation	6
Hb electrophoresis	6
interpretation the result of Erythropoietin	4
Interpretation of the result related to red cell disorders	200
screening tests of hemostasis: - Bleeding time, PT& INR,- PTT and thrombin Time	30
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 lymphoproliferative	2
Interpretation of the result disorders of Leukocytes and the spleen	60
ABO grouping: RH typing , cross matching and Comb's test	10
Ab screening & Identification: -Storage of blood, blood transfusion, Red cell wash and Separation of components Manual and automated	2
Column chromatography	2



Faculty of Medicine



Clinical Pathology
Department

Anemia cases log (Year 2)

Log of:

Case	Number
Cases related to different Disorders of Red Cells in hematology	1-3cases of each

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



Faculty of Medicine



Clinical Pathology
Department

4.5 Credit points Hematology Lectures and tutorials **Year 3**

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology	(4.5CP)	Clinical Pathology	(45 hours) Disorders of Hemostasis	(100%)
	0.38CP		1- Diagnostic Approach to the Bleeding Disorders	8.44% of didactics unit 1 year3
	0.38CP		2- Bleeding Disorders Caused by Vascular Abnormalities	8.44% of didactics unit 1 year3
	0.38CP		3- Bleeding Disorders Caused by Platelet Abnormalities * Quantitative platelet disorders	8.44% of didactics unit 1 year3
	0.56CP		* Qualitative (inherited and acquired) Disorders of Platelet Function * Essential Thrombocythemia and Thrombocytosis	12.44% of didactics unit 1 year3
	0.38CP		* Disseminated intravascular coagulation * Inherited and acquired Thrombophilia.	8.44% of didactics unit 1 year3
	0.28CP			6.22% of didactics unit year3
	0.47CP		4- Inherited and Acquired Coagulation Disorders	10.44 % of didactics unit 1 year3
	0.56CP		5-Fibrinolysis and its disorders.	
	0.47CP		6- Antithrombotic Therapy.	12.44% of didactics unit 1 year3
	0.38CP		- Formative assessment	10.44% of didactics unit 1 year3
	0.26CP			8.44%of didactics unit year3
	Student signature		Principle coordinator signature	5.77% of didactics Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

24 Credit points Clinical training in Hematology Year 3

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	(24CP)	Clinical Pathology	<ul style="list-style-type: none"> ➤ Practice with clinical cases for at least 6 months in the hematology unit including performance and interpretation of different laboratory techniques especially related to red cell disorders ➤ Log of laboratory skills as mentioned below; 	100% unit of Clinical training in year 3
	1CP		-Attend in lab for at least three hours /day once/week for 2 weeks to Perform the following laboratory techniques related to Disorders of Red Cells in hematology unit for at least 2 times with Level A including: <ol style="list-style-type: none"> 1) Serum iron and TIBC. 2) Osmotic fragility test. 3) Screening test for G6PD deficiency. 4) Sickling test. 5)Hb F &A2 estimation 6)Hb electrophoresis 	4.17% unit of Clinical training in year 3
	1CP		Attend in lab for at least one hour/day - once/week for 2weeks to Perform at least 2 times Erythropoietin assay, Study the principal and interpretation the of reported data related to Erythropoietin levels.	4.17%of Clinical training unit in year 3
Student signature			Principle coordinator Signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	1CP	Clinical pathology	Attend in lab for at least 2hours/day twice/week for 4 weeks to Perform Interpretation of the result related to red cell disorders at least 20 times	4.17 unit Clinical training in year 3
	6CP		Attend in lab for at least one hour/day for 6 weeks to Perform the following laboratory techniques related to Disorders of Hemostasis in hemostasis lab <i>i.e.:</i> -screening tests of hemostasis: (Bleeding time, PT& INR,- PTT and thrombin Time) at least 120 times with Level A - Perform the following laboratory techniques: Fibrinogen assay,- FDA, coagulation factors and vWF assay at least 6 times with level A and attendance for two hours/day in lab -Attend in lab for at least 3h/day- once /week for 6weeks to Perform the following test: platelet function tests, investigations of thrombophilia at least 6 times with (Level A).	25% unit Clinical training in year 3
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank		Clinical Pathology	-Attend in lab for at least one hour /day for 8 weeks and practice interpretation of the result related to Hemostasis at least 120 times.	continued
	1CP		-Attend in lab for at least 3 hours /day Once/week for 4 weeks to Perform in blood banking unit at least 5 times with level A of the following techniques: <ul style="list-style-type: none"> - ABO grouping & RH typing - Cross matching - Coomb's test 	4.17% of Clinical training unit in year 3
	1CP		-Attend in lab for at least 3 hours daily for one week to Perform in transfusion therapy and blood banking units at least 2 times with level A of the following techniques: <ul style="list-style-type: none"> -Ab screening & Identification - Storage of blood -Preparation of blood components; i.e; <ol style="list-style-type: none"> 1- Red cell wash 2- Separation of components by Manual and automated method 	4.17% of Clinical training unit in year 3
	1CP		Attend in lab for at least 3hours/ day - once/week for 2 weeks to Perform study of staining Myeloperoxidase, Sudan black, PAS , NAP ,Acid Phosphatase , at least 2 times with Level C, B & A .	4.17% of unit Clinical training in year 3
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical training hematology and Blood Bank		Clinical Pathology	-Attend in lab for at least three hours/day once/week for 2weeks To Perform immunophenotyping for at least one hour /day for two weeks of leukemia and lymphoproliferative disorders in flowcytometry laboratory at least 2 times with (Level C, B & A) including Interpretation of the results related to Disorders of Leukocytes and the spleen for 15 times, at least one time daily	
	1CP		-Attend in lab for at least one hour /day -twice /week for four weeks) to Study the principal and interpretation the result of Disorders of Leukocytes and the spleen for 12 times.	4.17% of unit Clinical training in year 3
	5CP		➤ Attend night shift (From 2 pm to 8 am) at least 30 night shifts, as one shift night/week for 30weeks	20.83% of unit Clinical training in year 3
	2CP		➤ Attend of at least 30% of clinical consultation laboratory round of staff members for at least 1 hour/day- three times /weeks for 20wks	8.33% of unit Clinical training in year 3
	2CP		➤ Attend for at least 3-4 hours/day for 4 weeks in Outpatient Clinic laboratory	8.33% of training unit in year 3
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



**Clinical Pathology
Department**

Clinical training	Credit points	Responsible department	Attendance	percentage of Achieved points
Clinical training hematology and Blood Bank	1CP	Clinical Pathology	➤ Apply quality control and laboratory safety at least 2 hours /week/ for 15 week	4.17% unit Clinical training in year 3
	1CP		➤ Attend Post graduate clinical teaching for 2 hours /week/ for at least 12weeks.	4.17% unit Clinical training in year 3
	1CP		➤ Formative assessment two times/year	4.17% of unit Clinical training in year 3
Student signature				Head of the department signature

Level of competency

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



Faculty of Medicine



Clinical Pathology
Department

**Management plan of the following hematological Procedures log
Year 3**

Procedure	Number
Serum iron and TIBC.	2
Osmotic fragility test.	2
Screening test for G6PD deficiency.	2
Sickling test.	2
Hb F & A2 estimation	1
Hb electrophoresis	1
interpretation the result of Erythropoietin	2
Interpretation of the result related to red cell disorders	20
screening tests of hemostasis: - Bleeding time, PT& INR,- PTT and thrombin Time	120
Fibrinogen assay,- FDA, coagulation factors and vWF assay	7
investigations of thrombophilia	7
Interpretation of the result of the disorders of hemostasis	120
Cytochemical staining : Myeloperoxidase, Sudan black, PAS ,NAP ,Acid Phosphatase	2
immunophenotyping of leukemia and lymphoproliferative	2
Interpretation of the result disorders of Leukocytes and the spleen	12
ABO grouping: RH typing , cross matching and Comb's test	5
Ab screening & Identification: -Storage of blood, blood transfusion, Red cell wash and Separation of components Manual and auomated	2
Column chromatography	2



Faculty of Medicine



Clinical Pathology
Department

Log of: Cases of Disorders of Hemostasis (Year 3)

Case	Number
Cases related to different disorders of Hemostasis	1-3cases for each

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



Faculty of Medicine



Clinical Pathology
Department

4.5 Credit points Hematology Lectures and tutorials year4

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology	<u>(4.5)</u>	Clinical Pathology	<u>(45 hours)</u>	100%
	0.28CP		1-Non-malignant Disorders of Leukocytes and the spleen * Quantitative Disorders of Leukocytes * Qualitative Disorders of Leukocytes	6.22% of didactics unit in year 4
	0.28CP		- Disorders of Phagocytic Leukocytes Characterized by Morphologic Changes - Functional Disorders of Leukocytes	6.22% of didactics unit in year 4
	0.38CP		* Abnormalities of the Monocyte-Macrophage System: The Lysosomal Storage Diseases -Gaucher Disease -Niemann-Pick Disease * Langerhans Cell Histiocytosis	8.44% of didactics unit in year 4
	0.1CP		* Infectious Mononucleosis	2.22% of didactics unit in year 4
	0.1CP		* Primary and acquired Immunodeficiency Syndromes	2.22% of didactics unit year4
	0.19CP		* Disorders of the Spleen	4.22% of didactics unit in year 4
	0.28CP		2-Hematologic Malignancies * Acute Leukemias - Diagnosis and Classification of the Acute Leukemias - Acute myloid leukaemia - Acute lymphoblastic leukaemia.	6.22% of didactics unit in year 4
0.46CP		10.22% of didactics unit in year 4		
Student signature		Principle coordinator signature	Head of the department signature	



Faculty of Medicine



Clinical Pathology
Department

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology	0.46CP	Clinical Pathology	* Myelodysplastic Syndromes - Diagnosis and Classification of MDS * Myeloproliferative Disorders - Chronic Myeloproliferative Disorders - Mixed Myeloproliferative / Myelodysplastic Syndromes - Chronic Myeloid Leukemia - Polycythemia Vera - Primary Myelofibrosis - Systemic Mastocytosis * Lymphoproliferative Disorders - Chronic Lymphocytic Leukemia - Diagnosis and Classification of Lymphomas - Hairy Cell Leukemia - Hodgkin Lymphoma * Plasma Cell Dyscrasias - Neoplastic Immunoglobulin Disorders - Non-neoplastic Immunoglobulin Disorders - Multiple Myeloma	10.22% of didactics unit in year 4
	0.56CP			12.44% of didactics unit in year 4
	0.56CP			12.44% of didactics unit in year 4
	0.56CP			12.44% of didactics unit in year 4
	Student signature		Principle coordinator signature	Head of the department signature



Faculty of Medicine



**Clinical Pathology
Department**

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Hematology		Clinical Pathology	Monoclonal Gammopathies of Undetermined Significance - Immunoglobulin Light-Chain Amyloidosis - Waldenström Macroglobulinemia - Cryoglobulinemia and Heavy Chain Disease	
	0.25CP		Formative assessment	5.55% of didactics unit in year4
	Student signature		Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

24 Credit points Clinical training in Hematology(main unit)

Year 4

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	(24)CP	Clinical Pathology	<ul style="list-style-type: none"> ➤ Practice with clinical cases for at least 6 months in the hematology unit including performance and interpretation of different laboratory techniques especially related to red cell disorders ➤ Log of laboratory skills as mentioned below; 	100% of unit training in year4
	1		<p>-Attend in lab for at least three hours /day once/week for 2 weeks to Perform the following laboratory technique related to Disorders of Red Cells 2 times with Level A. in hematology unit including:</p> <ol style="list-style-type: none"> 1) Serum iron and TIBC. 2) Osmotic fragility test. 3) Screening test for G6PD deficiency. 4) Sickling test. 5)Hb F &A2 estimation 6)Hb electrophoresis 	4.17 of unit training in year4
Student signature			Principle coordinator Signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	1	Clinical pathology	Attend in lab for at least one hour/day once/week for 2weeks to -Study the principal and interpretation of reported data related to Erythropoietin levels at least 2 times.	4.17% of unit training in year4
	1CP		-Attend in lab for at least 2hours/day twice /week for 4 weeks to Perform Interpretation of the result related to red cell disorders at least 20 times	4.17 of unit training in year4
	1CP		-Attend in lab for at least one hour/day for 2 weeks to 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) at least 30 times with Level A *Attend in lab for at least two hours/day /week for 2weeks to Perform the following laboratory techniques: Fibrinogen assay,FDA, coagulation factors and vWF assay at least 2 times with level B&A).	4.17 of unit training in year4
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	continued	Clinical Pathology	Attend in lab for at least 3hours/day once/week for 2weeks to Perform the following test: -platelet function tests, investigations of thrombophilia. At least 2 times with Level C, B & A -Attend in lab for at least one hour /day for 8 weeks including Interpretation of the result related to Hemostasis 20 times	continued
	1CP		-Attend in lab for at least 3 hours /day Once/week for four weeks to-Perform in blood banking unit at least 5 times with level A of the following techniques: - ABO grouping & RH typing - Cross matching - Coomb's test .	4.17% of unit training in year4
	1CP		-Attend in lab for at least 3hours daily for one weeks to Perform in transfusion therapy and blood banking units at least 2 times with level A of the following techniques: -Ab screening & Identification - Storage of blood -Preparation of blood components; i.e. 1- Red cell wash 2- Separation of components using Manual and automated technique.	4.17% of unit training in year4
	6CP		-Attend in lab for at least 3 hours/day - twice /week for 6weeks) To Perform Myeloperoxidase, Sudan black, PAS ,NAP ,Acid Phosphatase at least 12 times with Level A.	25% of unit training in year4
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	continued	Clinical pathology	-Attend in lab for at least 3hours/day once/week for 6weeks To Perform immunophenotyping of leukemia and lymphoproliferative disorders in flowcytometry laboratory at least 6 times with level A). -Attend in lab for at least one hour /day for 6 weeks to practice Interpretation of the result Disorders of Leukocytes and the spleen (at least 240 times),at least 3 times daily for 15wk	continued
	5CP		➤ Attend Night shift (From 2 pm to 8 am) 15 night shift one shift/week for 15 weeks	20.83% of unit training in year4
	2CP		➤ Attendance of at least 30% of clinical consultation laboratory round of staff members for at least three times /weeks 1hour/day for 20 wks	8.33% of unit training in year4
	2CP		➤ Attendance of at least 4 hours/day for 4 weeks in Blood Bank laboratory	8.33% of unit training in year4
	1CP		➤ Apply quality control and laboratory safety at least 2 hours /week/ for 15 weeks	4.17% of unit training in year4
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



**Clinical Pathology
Department**

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical hematology	1CP	Clinical pathology	➤ Attend Clinical teaching at least 2 hours /week/ for 16 weeks	4.17% of unit training in year4
	1CP		➤ Formative assessment two time/year	4.17% of unit training in year4
Student signature				Head of the department signature

Level of competency

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



Faculty of Medicine



Clinical Pathology
Department

Management plan of the following hematological Procedures log

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	20
screening tests of hemostasis: - Bleeding time, PT& INR,- PTT and thrombin Time	30
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	12
immunophenotyping of leukemia and lymphoproliferative	6
Interpretation of the result disorders of Leukocytes and the spleen	240
ABO grouping: RH typing , cross matching and Comb's test	10
Ab screening & Identification: -Storage of blood, blood transfusion, Red cell wash and Separation of components Manual and auomated	2
Column chromatography	2



Faculty of Medicine



**Clinical Pathology
Department**

Case Log :Disorders of Leukocytes and the spleen (Year 4)

Case	Number
Cases related to different disorders of Leukocytes and the spleen	1-3cases for each

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



Faculty of Medicine



**Clinical Pathology
Department**

A- Clinical Rotation Blood Bank

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



Faculty of Medicine



**Clinical Pathology
Department**

A- Clinical Rotation Blood Bank

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



Faculty of Medicine



Clinical Pathology
Department

A- Clinical Rotation Blood Bank

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

A- Clinical Rotation Blood Bank



Faculty of Medicine



**Clinical Pathology
Department**

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



Faculty of Medicine



Clinical Pathology
Department

A- Clinical Rotation Blood Bank

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



Faculty of Medicine



Clinical Pathology
Department

A- Clinical Rotation Hematology Laboratory

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



Faculty of Medicine



Clinical Pathology
Department

A- Clinical Rotation Hematology Laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

A- Clinical Rotation Hematology Laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Hemostasis Laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Hemostasis Laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Hemostasis Laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Rotation Flow cytometry Laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

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



Faculty of Medicine



**Clinical Pathology
Department**

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



Faculty of Medicine



Clinical Pathology
Department

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



Faculty of Medicine



**Clinical Pathology
Department**

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



Faculty of Medicine



Clinical Pathology
Department

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



Faculty of Medicine



**Clinical Pathology
Department**

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



Faculty of Medicine



**Clinical Pathology
Department**

Night Shift

Year 1

Date	Signature of supervisor	Date	Signature of supervisor



Faculty of Medicine



Clinical Pathology
Department

Night Shift

Year 2

Date	Signature of supervisor	Date	Signature of supervisor



Faculty of Medicine



Clinical Pathology
Department

Night Shift

Year 3

Date	Signature of supervisor	Date	Signature of supervisor



Faculty of Medicine



**Clinical Pathology
Department**

- Clinical Seminars log

Date	Attendance	Topic	Signature



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Seminars log

Date	Attendance	Topic	Signature



Faculty of Medicine



**Clinical Pathology
Department**

Post graduate teaching

Date	Title of lecture	Signature of Staff member



Faculty of Medicine



**Clinical Pathology
Department**

Post graduate teaching

Date	Title of lecture	Signature of Staff member



Faculty of Medicine



Clinical Pathology Department

Post graduate teaching

Date	Title of Tutorial	Signature of Staff member



Faculty of Medicine



**Clinical Pathology
Department**

Post graduate teaching

Date	Title of Tutorial	Signature of Staff member



Faculty of Medicine



Clinical Pathology
Department

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)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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 <u>life long learning</u> .								
Participate in clinical audit and research projects.								



Faculty of Medicine



Clinical Pathology
Department

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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 <u>exchange of information and collaboration</u> with patients, their families, and health professionals, including:- <ul style="list-style-type: none"> • <u>Present</u> a case. • <u>Write</u> a consultation note. • <u>Inform patients</u> of a diagnosis and therapeutic plan • Completing and maintaining comprehensive. • Timely and legible <u>medical records</u>. • Teamwork skills. 								



Faculty of Medicine



**Clinical Pathology
Department**

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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.								



Faculty of Medicine



**Clinical Pathology
Department**

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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								



Faculty of Medicine



Clinical Pathology
Department

Unit 2; Clinical Chemistry (subsidiary unit)



Requirements

- **Credit points:** 2.4 credit point for didactic (lectures, seminars, tutorial) and 12 point for training. This unit could be achieved at any time.
- Minimal rate of attendance 80% of training and didactic



Faculty of Medicine



Clinical Pathology
Department

(Clinical chemistry subsidiary unit)

Rotation / attendance proof

الأماكن التي تدرّب بها

توقيع مدير المستشفى	توقيع رئيس القسم	أسم المستشفى التي تدرّب بها



Faculty of Medicine



Clinical Pathology
Department

**2.4 Clinical Chemistry Lectures and tutorials (Subsidiary)unit
at any time Year (1,2,3&4)**

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical chemistry	2.4CP		24HOURS	100%
Clinical chemistry	0.2	Clinical Pathology	(2hours) 1- Carbohydrates	8.3% of didactics unit
	0.2		(2hours) 2- Lipids, Lipoproteins, Apolipoproteins, and Other Cardiovascular Risk Factors: Management of Lipoprotein Disorders	8.3% of didactics unit
	0.2		(2hours) 3-Amino Acids, Peptides And Proteins	8.3 of didactics unit %
	0.2		(2hours) 4-The Kidney And Non-Protein Nitrogenous Compounds	8.3% of didactics unit
	0.2		(2hours) 5- Physiology and Disorders of Water, Electrolyte, and Acid-Base Metabolism	8.3% of didactics unit
	0.2		(2hours) 6- Enzymes	8.3% of didactics unit
	0.2		(2hours) 7- Liver Disease	8.3% of didactics unit
	0.2		(2hours) 8-Cardiac Biomarkers	8.3% of didactics unit
	Student signature			Principle coordinator signature



Faculty of Medicine



**Clinical Pathology
Department**

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
	0.2		(2hours) 9-Mineral and Bone Metabolism	8.3% of didactics unit
	0.2		(2hours) 10- Endocrinology	8.3% of didactics unit
	0.2		(2hours) 11-Body fluid analysis	8.3% of didactics unit
	0.2		(2hours) 12-Tumor Markers	8.3% of didactics unit
	Student signature		Principle coordinator signature	Head of the department signature

12 Credit points Clinical training in Clinical Chemistry



Faculty of Medicine



Clinical Pathology
Department

(subsidiary unit)

At any time; Year 1 or 2or 3or4

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training hematology and Blood Bank	12	Clinical Pathology	<ul style="list-style-type: none"> ➤ Practice with for at least 2 months in the clinical chemistry unit including performance and interpretation of different laboratory techniques including fulfilling; ➤ Log of laboratory skills as mentioned below; 	100%
	0.5		- Attend in unit for at least 1hour / day for 2 weeks and Perform in Clinical Chemistry lab. at least 10 times with level A Basic Laboratory Techniques: 1- Specimen collection 2- Pipettes 3- Centrifuges 4- Balances 5- pH meter 6- Spectrophotometry	4.16% of unit training
	1		-Attend in lab for at least 2 hours / day -once /week for 4 weeks to Practice and 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, microalbumin, Uric acid, Bilirubin (total and direct),Total proteins,	8.44% of unit training



Faculty of Medicine



**Clinical Pathology
Department**

			Albumin , ALT, AST, ALP, GGT ,Cardiac markers, CK, and CK-MB , LDH, Troponin, Cholesterol, HDL-c, LDL-c, Triglycerides, Na, K, Ca& Ph	
Student signature			Principle coordinator signature	Head of the departments signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical chemistry (continued)	0.5		-Attend in lab for at least 1hour / day -once /week for 4 weeks to Practice and Perform in clinical chemistry units at least 4 times with level C,B& A of the following technique: Glycated Hb(Hb A1c) & Microalbumin	4.16% of unit training
	0.5CP		-Attend in lab for at least 2h / day -twice /weekly for 4 weeks to Practice and Perform in clinical chemistry units at least 8 times with level C,B in different automated chemistry analyzer	4.16% of unit training
	0.5CP		-Attend in lab for at least 1h / day -twice /weekly for 4 weeks to Practice and Perform complete urine analysis 8 times with level C,B& A	4.16% of unit training
	0.5CP		-Attend in lab for at least 1h / day -once /weekly for 4 weeks to Practice and Perform in clinical chemistry laboratory, analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids At least 4 times with level C,B& A.	4.16% of unit training
Student signature			Principle coordinator Signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical chemistry (continued)	1		-Attend in lab for at least 2 hour / day -twice /weekly for 4 weeks to Practice and 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 .	8.44% of unit training
	2		Attend in lab for at least 2h/day for 2 wk including interpretation of lab results at least 60 -80 results	16.66% of unit training
	0.5		Attend in lab for at least once/wk for 2 wkto Practice and Perform in electrophoresis laboratory electrophoresis at least 2 times with level B &C.	4.16% of unit training
	0.5		Practice in lab for at least 1-2hour/day - once/week for 8 weeks and Apply quality control and laboratory safety at least4 times	4.16% of unit training
	4		➤ Attend for at least 4h/day for 4weeks in the Outpatient clinic.	33.33% of unit training
	0.5		➤ Formative assessment	3.33%
Student signature			Principle coordinator Signature	Head of the department signature

* Level of competency

A- Independent performance

B- Performance under supervision C- Observed



Faculty of Medicine



Clinical Pathology
Department

Management plan of the following Clinical chemistry Procedures log

Procedure	Number
Basic Laboratory Techniques:- Specimen collection , Pipettes Centrifuges , Balances, pH meter, Spectrophotometry.	10 for each
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 for each
Glycated Hb(Hb A _{1c}) and Microalbumin	4 for each
Automation in clinical chemistry	8 for each
Urine analysis	8 for each
Analysis of biological fluids : Ascetic fluid, Pleural, CSF, Synovial fluids and Unknown body fluids	4 for each
Tumor markers : CEA , FreePSA, α -fetoprotein, CA125, CA19.9, CA15.3 and Free β subunit	4 for each
Interpretation of lab results	60-80
Electrophoresis	2



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Rotation hormonal assay and tumour marker lab.

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Rotation electrophoresis laboratory.

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Rotation Emergency Laboratory

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



Faculty of Medicine



Clinical Pathology
Department

Quality control and laboratory safety

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



Faculty of Medicine



Clinical Pathology
Department

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



Faculty of Medicine



Clinical Pathology
Department

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



Faculty of Medicine



Clinical Pathology
Department

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



Faculty of Medicine



Clinical Pathology
Department

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Seminars log

Date	Attendance	Topic	Signature



Faculty of Medicine



Clinical Pathology
Department

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 <u>life long learning</u> .								
Participate in clinical audit and research projects.								



Faculty of Medicine



Clinical Pathology
Department

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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 <u>exchange of information and collaboration</u> with patients, their families, and health professionals, including:- <ul style="list-style-type: none"> • <u>Present</u> a case. • <u>Write</u> a consultation note. • <u>Inform patients</u> of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible <u>medical records</u>. • <u>Teamwork skills</u>. 								



Faculty of Medicine



**Clinical Pathology
Department**




General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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.								



Faculty of Medicine



**Clinical Pathology
Department**

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								

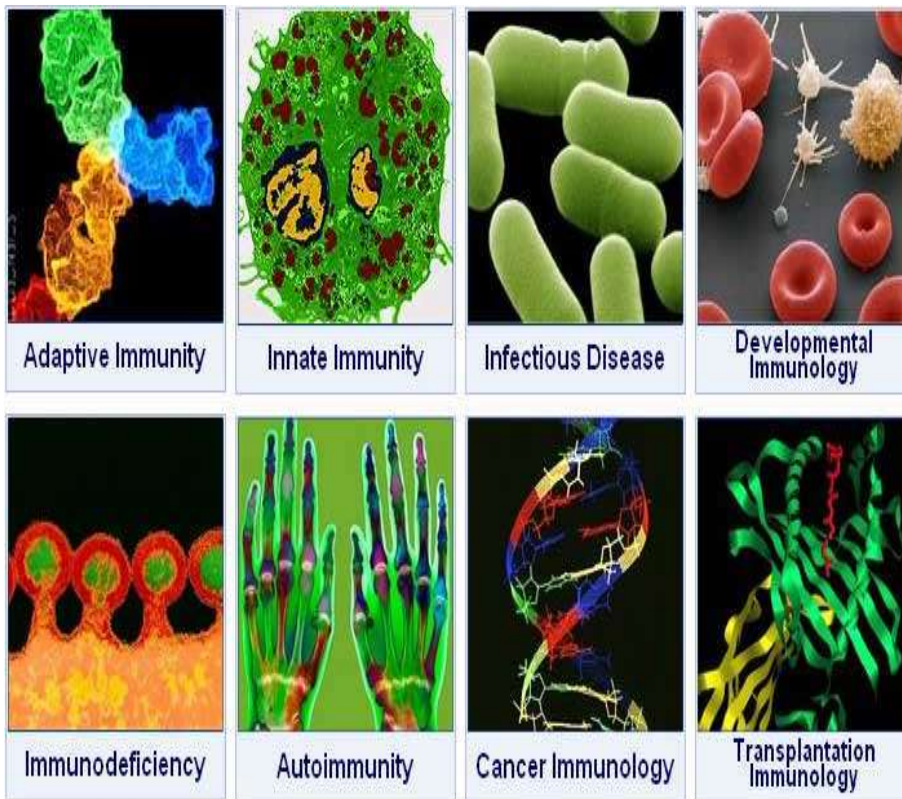


Faculty of Medicine



Clinical Pathology
Department

Unit 3 Clinical Immunology Unit (Subsidiary unit)



Requirements

- **Credit points:** 2.4 credit point for didactic (lectures, seminars, tutorial) and 12 point for training, total 14.4 CP. It could be achieved at any time.
- Minimal rate of attendance 80% of training and didactic



Faculty of Medicine



Clinical Pathology
Department

Unit (Module)3

(Clinical Immunology Subsidiary unit)

Rotation / attendance proof

الأماكن التي تدرّب بها

توقيع مدير المستشفى	توقيع رئيس القسم	أسم المستشفى التي تدرّب بها



Faculty of Medicine



Clinical Pathology
Department

2.4 Clinical 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	(1.6)	Clinical Pathology	Basic Immunology	66.6% of didactics unit
	(0.1)		(1 hour) Antigen - Feature of biologic Ag - Structure and chemical basis of antigenic Ag - Antigen recognition	4.16% 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



Faculty of Medicine



Clinical Pathology
Department

Name of the unit	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
	0.1		1 hour) Natural killer cells -Identification. -Development -functions	4.16% 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



Faculty of Medicine



Clinical Pathology
Department

Name of the unit	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 histocompatibility complex -Structure of MHC molecule -Binding of peptide to MHC molecule -Genomic organization of MHC molecules	4.17% of didactics unit
	(0.1)		Immunological Tolerance - T lymphocytes tolerance - B lymphocytes tolerance - Tolerance induced by foreign protein antigen	4.17% of didactics unit
	0.4CP		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 mediated Hypersensitivity - Type IV cell mediated hypersensitivity	8.33% of didactics unit
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

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
	0.08		(55 MIN) Rheumatic Diseases -Systemic lupus erythematosus -Rheumatoid arthritis	3.33% of didactics unit
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

Name of the unit		Responsible department	Attendance	Percentage of Achieved points
Clinical Immunology	0.08	Clinical pathology	(55 MIN) Endocrine Diseases -Type 1 (Insulin-dependent) Diabetes mellitus -Autoimmune thyroid disease	3.33% of didactics unit
	0.08		(55min) Liver Diseases -autoimmune hepatitis. -Primary biliary cirrhosis.	3.33% of didactics unit
	0.08		(55 min) Hematological diseases. -Autoimmune hemolytic anemia	3.33% of didactics unit
	0.08		Formative assessment	3.33% of didactics unit
			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

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

At any time; Year 1 or 2 or 3 or 4

Clinical training	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical training in clinical Immunology	12CP	Clinical Pathology	<ul style="list-style-type: none"> ➤ Practice with for at least 2 months in the clinical immunology unit including performance and interpretation of different laboratory techniques ➤ Log of laboratory skills as mentioned below; 	100%
	0.5		<ul style="list-style-type: none"> - 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 3 hour /day -twice/week for four weeks to <ul style="list-style-type: none"> - Perform in clinical immunology laboratory at least 8 times with level B& A of the following technique: serological tests: <ul style="list-style-type: none"> - Widal test - Malta test - RF, ASOT& CRP 	8.33% of unit training
Student signature			Principle coordinator signature	Head of the departmentsi gnature



Faculty of Medicine



Clinical Pathology
Department

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 technique	8.33% of unit training
	1		- Attend in unit for at least 3 hours /day- once /week for two week to -Perform in clinical immunology laboratory at least 2 times with level B& A of the following technique: ASMA, AMA & LKMA by indirect immune fluorescent technique	8.33% of unit training
	0.5		- Attend in unit for at least 3 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 technique at least	4.16% of unit training
	1		Perform in clinical immunology laboratory at least 4 times with level C&B analysis of the following serological test by immunoassay Anti-HIV, Anti-HCV, HBsAg , Anti-HBsAg(AUSAB), HBeAg, Anti-	8.33% of unit training



Faculty of Medicine



**Clinical Pathology
Department**

			<p>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 hour/day once /week for four weeks</p>	
Student signature			Principle coordinator Signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

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 interpretation of results & 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 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 at least four hours daily	16.66% of unit training
	2		➤ Attend for at least 3 weeks in the emergency laboratory at least 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



Faculty of Medicine



Clinical Pathology
Department

Management plan of the following clinical immunology Procedures log

Procedure	Number for each
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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Rotation, Immunology laboratory rotation

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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Rotation Immunology laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

Emergency laboratory

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



Faculty of Medicine



**Clinical Pathology
Department**

Quality control and Laboratory Safety

Date	Signature of supervisor	Date	Signature of supervisor



Faculty of Medicine



**Clinical Pathology
Department**

Night Shift

Date	Signature of supervisor	Date	Signature of supervisor



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Clinical Pathology
Department

Clinical Seminars log

Date	Attendance	Topic	Signature



Faculty of Medicine



Clinical Pathology
Department

Clinical Seminars log

Date	Attendance	Topic	Signature



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Seminars log book

Date	Attendance	Topic	Signature



Faculty of Medicine



Clinical Pathology
Department

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 <u>life long learning</u> .						
Participate in clinical audit and research projects.						



Faculty of Medicine



Clinical Pathology
Department

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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 <u>exchange of information and collaboration</u> with patients, their families, and health professionals, including:- <ul style="list-style-type: none"> • <u>Present</u> a case. • <u>Write</u> a consultation note. • <u>Inform patients</u> of a diagnosis and therapeutic plan Completing and maintaining comprehensive. • Timely and legible <u>medical records</u>. • Teamwork skills. 								



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**Clinical Pathology
Department**

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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.								



Faculty of Medicine



**Clinical Pathology
Department**

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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								



Faculty of Medicine



Clinical Pathology
Department

Unit 4: Clinical Microbiology/ subsidiary 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



Faculty of Medicine



Clinical Pathology
Department

Unit (Module)4

(Clinical Microbiology Subsidiary unit)

Rotation / attendance proof

الأماكن التي تدرب بها

توقيع مدير المستشفى	توقيع رئيس القسم	أسم المستشفى التي تدرب بها



Faculty of Medicine



Clinical Pathology
Department

2.4 Credit Point Microbiology Lectures and tutorials Subsidiary unit

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

Name of the unit	Credit points	Responsible department	Attendance	Percentage of Achieved points
Clinical microbiology	<u>0.4</u> (0.2)	Clinical Pathology	General microbiology:4h - Processing of samples & Rejection of samples -Antibiotic groups & drug resistant	16.66% of didactics unit
	(0.2)			8.3%
	(0.2)			8.3%
	<u>0.5</u> (0.25)		Medical mycology:5h -Superficial , cutaneous Mycosis & Subcutaneous mycosis -Systemic mycosis	<u>20.83% of didactics unit</u> 10.41%
	(0.25)			10.41%
	<u>0.5</u> (0.25) (0.25)			Medical virology:5h -Respiratory viruses -Hepatitis viruses
	(0.25)		10.41%	
	<u>1.0</u> 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	<u>41.66% of didactics unit</u>
	0.125			5.2%
	0.125			5.2%
0.125	5.2%			
0.125	5.2%			
0.125	5.2%			
0.125	5.2%			
0.125	5.2%			
0.125	5.2%			
Student signature			Principle coordinator signature	Head of the department signature



Faculty of Medicine



Clinical Pathology
Department

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	<ul style="list-style-type: none"> ➤ Practice with at least 2 months in the clinical microbiology unit including ; ➤ Performance and interpretation of different laboratory techniques ➤ 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 hour / 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 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



Faculty of Medicine



Clinical Pathology
Department

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 s/ day -once /week for 4 weeks as well as Practice and Perform in clinical microbiology laboratory at least 4 times with level B& A of 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 of 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 of 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



Faculty of Medicine



Clinical Pathology
Department

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 2 hours / day- weekly for 4 weeks and Perform in clinical microbiology laboratory at least 4 times with level C,B&A of complete urine and stool analysis .	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		➤ Attendance of 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	1.66% of training unit
Student signature				Principle coordinator Signature



Faculty of Medicine



Clinical Pathology
Department

**Management plan of the following Microbiological Procedures log
At any time year 1**

Procedure	Number for each
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 and Ziehl-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



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Rotation in clinical Microbiology Laboratory

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



Faculty of Medicine



Clinical Pathology
Department

Clinical Rotation Tuberculosis laboratory

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



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**Clinical Pathology
Department**

Clinical Rotation in Emergency Laboratory

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



Faculty of Medicine



Clinical Pathology
Department

Quality control and Laboratory Safety

Date	Signature of supervisor	Date	Signature of supervisor



Faculty of Medicine



**Clinical Pathology
Department**

Clinical Seminars log

Date	Attendance	Topic	Signature



Faculty of Medicine



**Clinical Pathology
Department**

Post graduate teaching

Date	Title of lecture	Signature of Staff member



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**Clinical Pathology
Department**

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



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Clinical Pathology
Department

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



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Clinical Pathology
Department

Laboratory skills in quality control and laboratory safety

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



Faculty of Medicine



Clinical Pathology
Department

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 <u>life long learning</u> .						
Participate in clinical audit and research projects.						



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Clinical Pathology
Department

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 <u>exchange of information and collaboration</u> with patients, their families, and health professionals, including:- <ul style="list-style-type: none"> • <u>Present</u> a case. • <u>Write</u> a consultation note. • <u>Inform patients</u> of a diagnosis and therapeutic plan • Completing and maintaining comprehensive. • Timely and legible <u>medical records</u>. • Teamwork skills. 												



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**Clinical Pathology
Department**

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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.								



Faculty of Medicine



Clinical Pathology
Department

General skills	could not judge (0)	strongly disagree(1)	↔		↔		(6)	strongly agree (7)
			(2)	(3)	(4)	(5)		
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



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**Clinical Pathology
Department**

● **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



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Name of the elective course: -----

Elective Course Lectures

Date	Attendance	Topic	Signature



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Elective Course Practical skills

Date	Attendance	Topic	Signature



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Clinical Pathology
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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:



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Elective Course Practical skills

Date	Attendance	Topic	Signature



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Other scientific activities

Lecture, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

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



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**Clinical Pathology
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Other scientific activities

Lecture, journal club, conference, workshop

Activity	Your role **	Date	Signature of supervisor

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



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**Clinical Pathology
Department**

Formative assessment and MCQ

Exam	Score	Grade*	Date	Signature

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



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**Clinical Pathology
Department**

Formative assessment and MCQ

Exam	Score	Grade*	Date	Signature

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



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**Clinical Pathology
Department**

Formative assessment and MCQ

Exam	Score	Grade*	Date	Signature

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



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Clinical Pathology
Department

الرسائل العلمية

عنوان الرسالة

عربي : _____

انجليزي : _____

المشرفون : _____

..... -1

..... -2

..... 3

..... -4

تاريخ القيد لدرجة : / /

تاريخ التسجيل الموضوع:

المتابعة الدورية :

توقيع المشرفين	المتبقي	ما تم انجازه من بروتوكول البحث	التاريخ



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Clinical Pathology
Department

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 Hematology.			
Module 2 Clinical Chemistry.			
Module 3 clinical immunology			
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.



Faculty of Medicine



Clinical Pathology
Department

كراسة الأنشطة
اللازمة لحصول الطالب علي درجة الدكتوراة في
الباثولوجيا الأكلينيكية (التخصص الدقيق : أمراض دم)
2016-2017
