



## Program SPECIFICATION FOR

### Medical Doctorate Degree in Clinical Hematopathology

Code: ...1705800.....

University: Alexandria

Faculty: Medical Research Institute

#### Program Specification

##### A- Basic information

1- Program title : ... Clinical Hematopathology

2- Program type:     single          double          multiple     

3- Department(s) : Hematology

4- Coordinator : Prof dr Amal Ghanem

5- External evaluator(s): Prof Dr: Ragia Badawy: Professor of Clinical pathology, NCI, Cairo University

6- Last date of program specification approval: 8/1/2017

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##### B- Professional Information

###### 1- Program aims:

By the end of the program the students should

- 1-List and recognize the basic knowledge of hematopoiesis and haemostasis.
- 2-Describe the importance of basic techniques in hematology.
- 3-Discuss the basic knowledge of molecular biology and to identify the role of molecular biology in the pathogenesis and management of different hematological diseases.
- 4-Relate cytogenetic abnormalities with diagnosis and prognosis of hematological diseases.
- 5-List the basic concepts of Immunology and immune disorders and discuss the regulation and disordered function of the immune system.
- 6- Interpret bone marrow aspiration and biopsy
- 7- Investigate a case of anaemia, coagulation or bleeding disorder.
- 8-Discuss different cytochemical stains.
- 9-Describe the importance of pharmacokinetics of specific drug groups and interpret their mechanism of action and side effects.



- 10-Recall the use of experimental animals in experimental leukemia and discuss the role of experimental leukemia in the study of new therapeutics
- 11-Recognize and interpret different benign and malignant hematological disorders and to develop the ability to solve problems and critically analyze data related to these disorders.
- 12-Examine, diagnose and treat patients suffering from benign and malignant hematological diseases.

## **2- Intended learning outcomes ( ILOS )**

### **a- knowledge and understanding:**

- a1-** Recall hematopoietic cell structure, function, production and fate. List the basic concepts of Immunology and immune disorders
- a2-** List the coagulation cascade and describe the formation of a blood clot
- a3 -** Explain the importance of basic hematological laboratory techniques in samples collection, preparation and instrumentation
- a4-** Recall the principals of molecular biology and discuss the prognostic value of molecular biology in hematological diseases. Discuss the basic principles of cytogenetics
- a5-** Describe the cause, pathogenesis and clinical picture of benign & malignant hematological disease. Recall the recent advances in the field of hematology, the details of ethical and legal practice and quality standards of the practice.
- a6-** Recall the pharmacokinetics of antimicrobials, antineoplastic drugs and immunotherapy and list the mechanism of action ,dose and side effects of hematological chemotherapy. Recall the use of experimental animals in experimental leukemia.

### **b- Intellectual skills:**

- b1-**Apply basic cell biology to pathogenesis of hematological disease and analyze the role of hemostasis
- b2-** Evaluate the values of different hematological lab techniques and analyze the results of a hematological lab instruments and add to the specialty through creativity and innovation.
- b3-** Analyze the basic concepts of molecular biology. Analyze cytogenetics abnormalities for diagnosis of different hematological diseases and compare the prognostic outcome of cytogenetic abnormalities.
- b4-** Interpret the findings in bone marrow aspirate and biopsy
- b5-** Compare the signs and symptoms and estimate the prognosis and outcome of different diseases
- b6-** Solve problems in management of benign and malignant hematological diseases. Take decisions in various professional situations on the basis of evidence and proofs.



**b7-** Interpret drug-drug interactions in hematological chemotherapy. Discuss the role of experimental leukemia in the study of new therapeutics. Conduct research studies that add to hematology and publish scientific articles and papers.

**c- professional and practical skills:**

c1- Competent in all basic and all required advanced professional skills through proper blood sample collection, preparation and complete blood count and learn how to assess different hematological lab techniques

c2- Write and appraise reports of complete blood picture and bone marrow aspirate

c3- Perform different hematological tests and improve methods and tools used .

c4- Use technology to advance practice.

c5- Perform proper clinical examination and determine the diagnosis of a case of benign & malignant hematological diseases. Design treatment plan for a case of benign& malignant hematological diseases

**d- General and transferable skills:**

d1- Develop skills in self appraisal and seek continuous learning

d2-- Develop team work skills ,work as team leader as well as a member in larger teams.

d3- Use information technology to improve professional practice and use different sources of information to obtain data.

d4- Develop skills in communication using all methods. Manage scientific meeting and appropriately utilize time.

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**3- Academic standards**

**3a External references for standards (Benchmarks)**

Generic Academic Reference Standards of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE)

**Date of Academic Reference standards (ARS) approval by Institute Council:  
12/2/2014**

**3b Comparison of provision to selected external references**

**Comparison between Generic Academic Standards of NAQAAE and  
ARS of M.D of clinical Hematopathology**



<b>Generic Academic Standards</b>	<b>ARS of M.D of clinical Hematopathology</b>
<b>A1-Basic facts , theories, of the specialty and related subjects/ fields</b>	<b>a1-</b> Recognize the basic knowledge of hematopoiesis and haemostasis <b>a2-</b> List the basic techniques in hematology <b>a3 -</b> Recognize the principals of molecular biology ,immunology and cytogenetics
<b>A2- Mutual relation between professional practice and effects on environment</b>	<b>a4-</b> Recall different benign and malignant hematological disorders and tests needed to diagnose them. <b>a5-</b> Describe the importance of pharmacokinetics of specific drug groups.
<b>A3- Recent advances in the field of practice</b>	<b>a5-</b> Recognize the recent advances in the field of hematology
<b>A4-Details of ethical &amp; legal practice</b> <b>A5 -Quality standards of the practice</b>	<b>a5-</b> Recognize the recent advances in the field of hematology, the details of ethical and legal practice and quality standards of the practice.
<b>A6- Design, conduction &amp; publishing of scientific research</b>	<b>Design, conduction &amp; publishing of scientific research</b> Through student assignments and thesis



<b>A7- Ethical considerations in different types of scientific research</b>	<b>Ethical considerations in different types of scientific research</b>  Through thesis
<b>B1- Analyze, deduce, extrapolate &amp; evaluation of information</b>	<b>b1-</b> Investigate a case of anaemia, coagulation or bleeding disorder.  <b>b2-</b> Evaluate the values of different hematological lab techniques. Interpret the findings in complete blood count ,bone marrow aspirate and biopsy  <b>b3-</b> Analyze the basic concepts of molecular biology, immunology and cytogenetics
<b>B2- Solve the majority of problems in the specialty according to the available data ( complete or incomplete)</b>	<b>b4-</b> Solve problems in management of benign and malignant hematological diseases. Take decisions in various professional situations on the basis of evidence and proofs
<b>B3- Conduct research studies that add to the existing specialty knowledge</b>	<b>Conduct research studies that add to the existing specialty knowledge</b> Through thesis
<b>B4- Publish scientific articles/papers ( in indexed journals)</b>	<b>Publish scientific articles/papers</b> Through thesis
<b>B5- Plan and implement ( or supervise implementation of) enhancement &amp; Improvement approaches to practice</b>	<b>b5-</b> Interpret drug-drug interactions in hematological chemotherapy. Conduct research studies that add to hematology .  <b>C4-</b> Perform proper clinical examination and determine the diagnosis of a case of benign & malignant hematological diseases and design treatment plan for it
<b>B6- Take decisions in various professional situations ( including dilemmas &amp; controversial issues)</b>	<b>b4-</b> Solve problems in management of benign and malignant hematological diseases. Take decisions in various professional situations on the basis of evidence and proofs  <b>C4-</b> Perform proper clinical examination and determine the



	diagnosis of a case of benign & malignant hematological diseases and design treatment plan for it
<b>B7- Add to the specialty field through creativity &amp; innovation</b>	<b>Add to the specialty field through creativity &amp; innovation</b> Through thesis
<b>B8- Manage discussions on basis of evidence and proofs</b>	<b>b4-</b> Solve problems in management of benign and malignant hematological diseases. Take decisions in various professional situations on the basis of evidence and proofs
<b>C1- Competent in all basic and all required advanced professional skills ( to be determined according to the specialty board/ department)</b>	<b>c1-</b> Perform different hematological tests and improve methods and tools used
<b>C2- Write and appraise reports</b>	<b>c2-</b> Write and appraise reports of complete blood picture and bone marrow aspirate
<b>C3- Evaluate <u>and improve</u> methods and tools used in specialty</b>	<b>Evaluate <u>and improve</u> methods and tools used in specialty</b> Through student questionnaire
<b>C4- Use technology to advance practice</b>	<b>c3-</b> Use technology to advance practice.
<b>C5- Plan professional development courses to improve practice and enhance performance of juniors</b>	<b>Plan professional development courses to improve practice and enhance performance of juniors</b> Through student questionnaire
<b>D1- Communicate effectively using all methods</b>	<b>d4-</b> Develop skills in communication using all methods
<b>D2- Use information technology to improve his/her professional practice</b>	<b>d3-</b> Use information technology to improve professional practice and use different sources of information to obtain data
<b>D3- Teach and evaluate others</b>	<b>d1-</b> Develop skills in self appraisal and seek continuous



	learning d4- Develop skills in communication using all methods. Manage scientific meeting and appropriately utilize time.
<b>D4- Perform self appraisal &amp; seek continuous learning</b>	<b>d1-</b> Develop skills in self appraisal and seek continuous learning
<b>D5- Use different sources of information to obtain data</b>	<b>d3-</b> Use information technology to improve professional practice and use different sources of information to obtain data.
<b>D6- Work in teams as well as a member in larger teams</b>	<b>d2--</b> Develop team work skills ,work as team leader as well as a member in larger teams.
<b>D7- Manage scientific meetings and appropriately utilize time</b>	<b>d4-</b> Develop skills in communication using all methods. Manage scientific meeting and appropriately utilize time.





**4.b.vii- Field Training**

Yes

No

**4.b.viii- Program levels (in credit-hours system)**

Student is required to pass at least 12 credit hours with CGPA not less than C+ before submitting a thesis proposal.

**5- Program Courses****5.1- Compulsory (21 CH)**

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1705801	Hematological cell Biology	1	1	
1705806	Basic laboratory techniques	2	1	2
1705803	Hematological Molecular biology	1	1	
170804	Hematological Cytogenetics	2	1	2
1705807	Labortatory Hematopathology			
	(a)	1	-	2
	(b)	2	1	2
	(c)	2	1	2
	(d)	2	1	2
1705802	Hematological Immunology	1	1	
1705805	Pharmacology of hematological chemotherapy	1	1	
1705808	Clinical Benign Haematology			
	(a)	1	1	-
	(b)	2	1	2
1705809	Clinical Malignant hematology			
	(a)	1	1	-
	(b)	2	1	2



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### 5.2- Elective I (3 Credit Hours)

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1715821	Internal medicine	1.5	1	1
1718824	Diagnostic Radiology	1.5	1	1

### 5.3- Elective II

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1706820	Bacteriology	3	2	2
1710820	Pathology	3	2	2
1705810	Experimental haematology	1.5	1	1

### 5.4- Optional – (none)

## 6- Program admission requirements

- The student applying for doctorate degree should have had a master degree with at least a grade of C or an equivalent degree in Clinical Haematopathology, clinical pathology, Internal Medicine or Pediatrics.

## 7- Regulations for progression and program completion

For the progression and completion of the program to obtain the degree of

### Medical Doctorate in Degree in Clinical Hematopathology

- Complete.....24..... credit hours with CGPA of at least C+.
- Submit a thesis validity report by an examination committee approved by the department council and their members include at least two external examiners.
- The doctorate degree is awarded to the student who passes the scientific debate of the thesis after successfully passing all the required courses to obtain a degree as well as passing the comprehensive exam if any, upon the suggestion of the department's board and approval of the Institute's Council

**8- Evaluation of Students enrolled in the program.**

<b>Tool evaluation</b>	<b>Intended learning outcomes being assessed</b>
Written	ILOs a &b
Practical	ILOs c
Oral	ILOs a ,b &d
Semester Work	ILOs b & d

**Evaluation of the Program**

<b>Evaluator</b>	<b>Tool</b>	<b>Sample</b>
1- Senior students	Interview	50 %
2- Alumni	Interview	Representative sample
3- Stakeholders (Employers)	Interview	Representative sample
4- External Evaluator(S)	Reports	Prof Dr: Ragia Badawy: Professor of Clinical pathology, NCI, Cairo University
5- Other		

**Dates of Previous editions/revisions:**

<b>Editions/Revisions Number</b>	<b>Date</b>
Edition no.1	2009
Edition no. 2	2011
Edition no.3	5/6/2014
Edition no.3, revision no.1	12/2014
Edition no.3, revision no.2	10/2016
Edition no.3, revision no 3	9/2017



**Program coordinator :**

Name: Prof Dr Amal Ganem.

Signature .....

Date **6/9/2017**

**Department Head:**

Name:....Prof Dr Amal Ganem..... Signature: .....

**Date of Department Council Approval: 6/9/2017**

**Matrix for ILOs of Programme of clinical hematopathology and its aims**

Aims \ ILOS	A	A	A	A	A	A	B	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D
	1	2	3	4	5	6	1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4
<b>1- List and recognize the basic knowledge of haematopoiesis and haemostasis</b>	X	X					X															
<b>2- Describe the importance of basic techniques in haematology</b>			X					X														



3- Discuss the basic knowledge of molecular biology and to identify the role of molecular biology in the pathogenesis and management of different haematological diseases			X					X											
4--Relate cytogenetic abnormalities with diagnosis and prognosis of haematological diseases.			X	X				X											
5 - List the basic concepts of Immunology and immune disorders and discuss the regulation and disordered function of the immune system.	X																		
6- Interpret bone marrow aspiration and biopsy								X					X						



<b>7-</b> Investigate a case of anaemia, coagulation or bleeding disorder.					X	X						X							
<b>8-</b> Discuss different cytochemical stains.							X												
<b>9-</b> Describe the importance of pharmacokinetics of specific drug groups and interpret their mechanism of action and side effects.				X								X							
<b>10-</b> Recall the use of experimental animals in experimental leukemia and discuss the role of experimental leukemia in the study of new therapeutics				X								X							
<b>11-</b> Recognize and interpret			X							X									



different benign and malignant haematological disorders and to develop the ability to solve problems and critically analyze data related to these disorders.																				
<b>12-</b> Examine, diagnose and treat patients suffering from benign and malignant haematological diseases.									X					x	x	X				

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D1 to D4 are fulfilled through student activities



**Courses vs Program ILOs matrix**

Title of the course	A 1	A 2	A 3	A 4	A 5	A 6	B 1	B 2	B 3	B 4	B 5	B 6	B 7	C1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	
Hematological  cell Biology	x	x					x													x		x	x
Basic laboratory techniques			x					x							x						x		x
Molecular biology				X					x											x		x	
Hematological Cytogenetics				x					x											x		x	
Laboratory Hematopathology (a,b,c,d)	x									x					x	x				x	x	x	
Hematological Immunology	x							x	x								x			x		x	
Clinical Benign Haematology(a,b)					x						x	x					X			x		x	
Malignant hematology(a,b)				x	x					x	x						x				x		x
Pharmacology of hematological chemotherapy						X								x							x		x
Experimental Hematology						x								x						x		x	





**Matrix for programme ILOs and ARS of M.D of clinical Hematopathology**

Programme ARS	A 1	A 2	A 3	A 4	A 5	A 6	B 1	B 2	B 3	B 4	B 5	B 6	B 7	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	
A1	x	x																					
A2			x																				
A3				x																			
A4					x																		
A5						x																	
B1							x	x															
B2								x		x													
B3									x														
B4											x	x											
B5													x										
C1														x		x							
C2															x								
C3																	x						
C4																		x					
D1																				x			
D2																					x		
D3																						x	
D4																							X



## Teaching and learning methods vs courses matrix

## M.D in Clinical Hematopathology code 1705800

	Course code 1705801	Course code 1705802	Course code 1705803	Course code 1705804	Course code 1705805	Course code 1705806	Course code 1705807 A,B,C,D	Course code 1705808 A,B	Course code 1705809 A,B
Lecture	X	X	X	X	X	X	X	X	X
Practical/Clinical				PRACTICAL		PRACTICAL	PRACTICAL	Clinical	Clinical
Brainstorming									
Discussion Groups									
Problem Solving							X		
Case Study								X	X
Field Training									
Role playing									
Training Workshops									
Self-Directed Learning	X	X	X	X	X	X	X	X	X
e-learning									
Project									