

**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: Ahmed Bedewy**

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

**6- Last date of program specification approval: 5-6-2014**

**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 diagnose 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.

13- Use systematic approaches to design and conduct scientific research and communicate efficiently and lead work teams.

14- Conduct research studies that add to existing specialty knowledge and act in a manner that reflects a commitment to integrity, credibility, and professionalism.

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

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

**a1-** Identify 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 -** Recognize the importance of basic hematological laboratory techniques in samples collection, preparation and instrumentation

**a4-** Recognize the principals of molecular biology and discuss the prognostic value of molecular biology in hematological diseases and the basic principles of cytogenetics

**a5-** Describe the cause, pathogenesis and clinical picture of benign & malignant hematological disease and 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.

**A7** Conduct design and explore publishing of scientific research

### **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 and 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 and take decisions in various professional situations on the basis of evidence and proofs.

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

**b8-** Prepare scientific articles /papers to be published in indexed journals

### **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 and 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.

### 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)

Adopted at MRI council 12/2/2014 and re –adopted at 15/1/2023

Last date of Academic References standards (ARS) approval by institute 15/1/23: Council

#### 3b-Comparison of provision to selected external references

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

Generic Academic Standards	ARS of M.D of clinical Hematopathology
<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 cause, pathogenesis and clinical picture of benign & malignant hematological disease and the recent advances in the field of hematology, the details of ethical and legal practice and quality standards of the practice
<b>A3- Recent advances in the field of practice</b>	<b>A6-</b> Recall the supplementary techniques to examine blood parasites and indications and tests for stem cell transplant
<b>A4-Details of ethical &amp; legal practice</b> <b>A5 -Quality standards of the practice</b>	<b>a5-</b> Describe the cause, pathogenesis and clinical picture of benign & malignant hematological disease and 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>A7-</b> conduct design and explore publishing of scientific research
<b>A7- Ethical considerations in different types of scientific research</b>	<b>A5-</b> Describe the cause, pathogenesis and clinical picture of benign & malignant hematological disease and the recent advances in the field of hematology, the details of ethical and legal practice and quality standards of the practice

<p><b>B1- Analyze, deduce, extrapolate &amp; evaluation of information</b></p>	<p><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</p>
<p><b>B2- Solve the majority of problems in the specialty according to the available data (complete or incomplete)</b></p>	<p><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</p>
<p><b>B3- Conduct research studies that add to the existing specialty knowledge</b></p>	<p><b>B7-</b> Interpret drug-drug interactions in hematological chemotherapy, the role of experimental leukemia in the study of new therapeutics and conduct research studies that add to hematology and publish scientific articles and papers.</p>
<p><b>B4- Publish scientific articles/papers ( in indexed journals)</b></p>	<p><b>B8-</b> Prepare scientific articles /papers to be published in indexed journals</p>
<p><b>B5- Plan and implement (or supervise implementation of) enhancement &amp; Improvement approaches to practice</b></p>	<p><b>b5-</b> Interpret drug-drug interactions in hematological chemotherapy. Conduct research studies that add to hematology.</p>
<p><b>B6- Take decisions in various professional situations (including dilemmas &amp; controversial issues)</b></p>	<p><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</p>
<p><b>B7- Add to the specialty field through creativity &amp; innovation</b></p>	<p><b>B6-</b> Prepare scientific articles /papers to be published in indexed journals</p>
<p><b>B8- Manage discussions on basis of evidence and proofs</b></p>	<p><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</p>
<p><b>C1- Competent in all basic and all required advanced professional skills ( to be determined according to the specialty board/ department)</b></p>	<p><b>c1-</b> Perform different hematological tests and improve methods and tools used</p>
<p><b>C2- Write and appraise reports</b></p>	<p><b>c2-</b> Write and appraise reports of complete blood picture and bone marrow aspirate</p>
<p><b>C3- Evaluate <i>and improve</i> methods and tools used in specialty</b></p>	<p><b>C3-</b> Perform different hematological tests and improve methods and tools used</p>

<b>C4- Use technology to advance practice</b>	C4-. Use technology to advance practice.
<b>C5- Plan professional development courses to improve practice and enhance performance of juniors</b>	C5- Design treatment plan for a case of benign& malignant hematological diseases
<b>D1- Communicate effectively using all methods</b>	d4- Develop skills in communication using all methods
<b>D2- Use information technology to improve his/her professional practice</b>	d3- Use information technology to improve professional practice and use different sources of information to obtain data
<b>D3- Teach and evaluate others</b>	d1- 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>	d1- Develop skills in self appraisal and seek continuous learning
<b>D5- Use different sources of information to obtain data</b>	d3- 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>	d2-- 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>	d4- Develop skills in communication using all methods. Manage scientific meeting and appropriately utilize time.

## 4- Curriculum structure and contents

**4.a program duration: 5 years**

**4.b program structure :**

#### 4.b.i- No. of hours per week in each year/semester:

Semester	Number of hours
First semester	3 CH
Second semester	3 CH
Third semester	2.5 CH
Fourth semester	2.5 CH
Fifth semester	2 CH
Sixth semester	4 CH
Seventh semester	3CH
Eighth semester	4CH

#### 4.b.ii- No. of credit hours

Lectures	15	Practical	9	Thesis	24	Total	48
			Compulsory	21	Elective	3	Optional

#### 4.b.iii- No. of credit hours of specialized courses

No.  %

#### 4.b.iv- No. of credit hours of other courses

No.  %

#### 4.b.v- 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	
1705804	Hematological Cytogenetics	2	1	2
1705807 a	Laboratory Hematopathology (a)	1	-	2
1705807 b	Laboratory Hematopathology (b)	2	1	2
1705807c	Laboratory Hematopathology (c)	2	1	2
1705807d	Laboratory Hematopathology (d)	2	1	2
1705802	Hematological Immunology	1	1	
1705805	Pharmacology of hematological chemotherapy	1	1	
1705808 a	Clinical Benign Haematology (a)	1		1
1705808 b	Clinical Benign Haematology (b)	2	1	2
1705809 a	Clinical Malignant hematology (a)	1		1
1705809 b	Clinical Malignant hematology (b)	2	1	2
	Total	21	13	16

### 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	Radiodiagnosis	1.5	1	1
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- Teaching and learning methods

Lectures, practical, problem solving, case study, self-directed learning

### 8- 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**

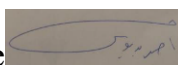
- Complete.....24..... credit hours with CGPA of at least C+ through courses.
- Complete 24 credit hours through thesis
- Submit a thesis validity report.
- Written and/or practical(or clinical) and/or oral exams are held for each semester by a committee chosen by the department's council and approved by the Institute's board ( The internal regulations of the Institute determine the rules specifying the conduct of the exams which take place after the completion of the course, the student should receive a grade of C + or should then apply for additional courses to improve his GPA, a comprehensive exam could be held upon the suggestion of the academic supervisor and the approval of the department's board as well as the Institute's Council).
- After passing at least 12 credit hours of courses, the student may register for the accredited hours of the thesis and he is registered under the name "a Ph.D candidate".
- The department's board chooses the committee of supervisors for the PhD thesis.
- The student should pass the exam in English language, only students at language departments may be exempted from this condition. Obtaining the license to lead the International Computer (ICDL) is a pre-requisite for obtaining the degree.
- 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 program intended learning outcomes

Evaluator	Tool	Sample
1- Senior students	Questionnaire	80%
2- Alumni	Questionnaire	10%
3- Stakeholders (Employers)	Meeting	10%
4- External Evaluator(S) External Examiner (s)	Report	Prof Ragia Badawy
5- Other		

#### Program coordinator :

Name: Prof. Dr: Ahmed Bedewy. Signature



#### Department Head:

Name: Prof. Dr: Ahmed Bedewy. Signature



Date: 31/10/2023



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

ILOS Aims	A	A	A	A	A	A	A	B	B	B	B4	B	B	B	B	C	C	C	C4	C5	D	D	D	D
	1	2	3	4	5	6	7	1	2	3		5	6	7	8	1	2	3			1	2	3	4
1	X	X																						X
2			X																					
3				X																				
4					X					X												X		
5	X																							
6											X												X	
7								X	X															X
8									X															
9						X																		
10						X																		
11					X							X												
12													X							X		X		
13							X								X									X
14							X								X						X			







### Attributes versus aims

Generic Graduate Attributes of NAQAAE	Graduate Attributes of Medical Doctor in Clinical Hematopathology	Programme aims
	By the end of this program, Graduate of Medical, <i>should be able to</i>	
Master the basics and methodologies of scientific research.	Master the basic knowledge of hematopoiesis and haemostasis	List and recognize the basic knowledge of hematopoiesis and haemostasis
Work continuously to add to his/her knowledge in the field of specialty.	Conduct research studies that add to existing specialty knowledge	Conduct research studies that add to existing specialty knowledge
Apply the analytical and critical approach to knowledge in the field of specialty and related fields.	Apply basic knowledge of molecular biology to identify the role of molecular biology in the pathogenesis and management of different hematological diseases	Discuss the basic knowledge of molecular biology and to identify the role of molecular biology in the pathogenesis and management of different hematological diseases
Integrate knowledge in the field of specialty with related knowledge, deduce and develop relationships between them.	Integrate knowledge of pharmacokinetics of specific drug groups and interpret their mechanism of action and side effects	Describe the importance of pharmacokinetics of specific drug groups and interpret their mechanism of action and side effects
Demonstrate a deep awareness of current problems and modern theories in the field of specialty.	Demonstrate a deep awareness of different benign and malignant hematological disorders and to develop the ability to solve problems and critically analyze data	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
Identify professional problems and find innovative solutions to solve them.	Examine, diagnose and treat patients suffering from benign and malignant hematological diseases	Examine, diagnose and treat patients suffering from benign and malignant hematological diseases
Master a wide range of professional skills in the field of specialty.	Master skills to use basic techniques in hematology	Describe the importance of basic techniques in hematology.
Develop new methods, tools and methods for professional practice.	Develop new methods, tools to diagnose by using different cytochemical stains	Discuss different cytochemical stains
Use appropriate technological means	Use experimental animals in	Recall the use of

to serve his professional practice.	experimental leukemia and discuss the role of experimental leukemia in the study of new therapeutics - Relate cytogenetic abnormalities with diagnosis and prognosis of hematological diseases	experimental animals in experimental leukemia and discuss the role of experimental leukemia in the study of new therapeutics - Relate cytogenetic abnormalities with diagnosis and prognosis of hematological diseases
Communicate efficiently and lead work teams in various professional scenarios.	Communicate efficiently and lead work teams	Communicate efficiently and lead work teams
Take Decision in light of available data.	Investigate a case of anaemia, coagulation or bleeding disorder	Investigate a case of anaemia, coagulation or bleeding disorder
Employ and develop available resources efficiently and work to find new resources.	Employ and develop available resources to diagnose immune disorders and discuss the regulation and disordered function of the immune system.	List the basic concepts of Immunology and immune disorders and discuss the regulation and disordered function of the immune system.
Show awareness of his/her role in community development and environmental preservation	Interpret bone marrow aspiration and biopsy to diagnosis cases	Interpret bone marrow aspiration and biopsy
Act in a manner that reflects a commitment to integrity, credibility, and professionalism.	Act in a manner that reflects a commitment to integrity, credibility, and professionalism	Act in a manner that reflects a commitment to integrity, credibility, and professionalism
Commit to continuous self-development and transfer his/her knowledge and experiences to others.	Use systematic approaches to design and conduct scientific research	Use systematic approaches to design and conduct scientific research