

## Program Specification for Ph. D Degree in Histochemistry & Cell Biology

**Code: 1709800**

**University:** Alexandria

**Faculty:** Medical Research Institute

### Program Specification

#### A-Basic information

1- Program title: Ph. D Degree in Histochemistry & Cell Biology

2- Program type:                      single        double        multiple   

3- Department(s): Histochemistry & Cell Biology

4- Coordinator: Dr. Noura Abdel Kader Ahmed Matar

5- External evaluator(s): Prof. Dr. Ismail Sadek

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

#### B- Professional Information

##### 1- Program aims:

The programme is designed to produce scientifically and professionally capable candidates to meet regional and national needs, by the end of this program the student should:

- 1- be provided with knowledge, skills and critical awareness to make a significant contribution to research.
- 2- Use available tools and stains to detect the cellular disorders by histochemistry and immunohistochemistry.
- 3- recognize basic principles of techniques and basic knowledge.
- 4- Evaluate and judge of scientific paper.
- 5- explore how research is come out.
- 6- Communicate effectively through oral presentations.
- 7- Establish work relationship with colleagues and work effectively as a part of a team.

8. Conduct research studies that add to the existing specialty knowledge

**By the end of this programme the student should:**

- 1- Understand the broad-based theoretical and practical of cell biology and histochemistry.
- 2- Manage common and less common/adequate problems.
- 3- Integrate information of specially and related subject to analyze and solve problems.
- 4- Competent in basic and some advanced procedure.
- 5- Able to conduct scientific research.

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

**a- knowledge and understanding:**

- a1- Classify cell organelles.
- a2- Discuss different branches of histochemistry.
- a3- Explain cellular disorders and their detection.
- a4- Recall the mutual relation between professional practice and effects on environment.
- a5- Recognize basic facts, theories of the specialty and recent advances in the field of practice.
- a6- Describe the details of ethical and legal practice .
- a7- Explain the guidelines governing ethics, in addition to the quality standards of the practice.
- a8\_ Design, conduction & explore publishing of scientific research.

**b- Intellectual skills:**

- b1- Select different histochemical staining .
- b2- Compare vital processes in cell organs to keep cell life .
- b3- Choose the reasoning behind their allocations of scare resources in treatment of animals and hence in man.
- b4-Conduct research studies that add to specialty and publish scientific articles and paper.
- b5- Manage discussions on basis of evidence and proofs and add to the specialty field through seminars.
- b6- Plan and implement enhancement and improvement approaches to practice.
- b7- Appraise majority of problems according to the available data and take a decision in various professional situations.
- b8 - Prepare scientific articles/papers to be published in indexed journals.

b9- Add to the specialty field through creativity & innovation through thesis.

**c- Professional and practical skills:**

- c1- Apply the available tools to detect cellular contents .
- c2- Demonstrate the different uses of stains.
- c3- Perform different special stains in various branches of histochemistry.
- c4- Interpret results from both light and electron microscopes.
- c5- Illustrate professional development course to improve practice and enhance performance of juniors.
- c6- Competent in all basic and all acquired advanced professional skills, write and appraise reports and improve methods and tools used in specialty .
- c7- Use technology to advance practice.
- C8- Evaluate and improve methods and tools used in specialty through candidates' questionnaire.
- C9- Plan professional development courses to improve practice and enhance performance of juniors through candidates' questionnaire.

**d- General and transferable skills:**

- d1- Work effectively as a part of teamwork .
- d2- Evaluate reflectively on their own learning process. Develop skills, in self appraisal and seek continuous learning .
- d3- Develop skills in observation and communications .
- d4- Distinguish problem solving competency.
- d5- Teach and evaluate others and appropriately utilize time .
- d6- Use information technology to improve professional practice and use different sources of information to obtain data.

**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 Reference standards (ARS) approval by Institute Council:  
15/1/2023**

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

Generic Academic Standards	ARS of Ph.D of Histochemistry and Cell Biology
<p><b>A1-Basic facts, theories, of the specialty and related subjects/ fields</b></p>	<p>a1- Classify cell organelles. a2- Discuss different branches of histochemistry. a3- Explain cellular disorders and their detection.</p>
<p><b>A2- Mutual relation between professional practice and effects on environment</b></p>	<p>a1- Classify cell organelles. a2- Discuss different branches of histochemistry. a4- Recall the mutual relation between professional practice and effects on environment. a5- Recognize basic facts, theories of the specialty and recent advances in the field of practice.</p>
<p><b>A3- Recent advances in the field of practice</b></p>	<p>a5- Recognize basic facts, theories of the specialty and recent advances in the field of practice.</p>
<p><b>A4-Details of ethical &amp; legal practice</b></p>	<p>a6- Describe the details of ethical and legal practice. a7- Explain the guidelines governing ethics, in addition to the quality standards of the practice.</p>
<p><b>A5 -Quality standards of the practice</b></p>	<p>a5- Recognize basic facts, theories of the specialty and recent advances in the field of practice. a7- Explain the guidelines governing ethics, in addition to the quality standards of the practice.</p>
<p><b>A6- Design, conduction &amp; publishing of scientific research</b></p>	<p>a8_ design conduction&amp; explore publishing of scientific research through thesis</p>
<p><b>A7- Ethical considerations in different types of scientific research</b></p>	<p>a6- Describe the details of ethical and legal practice. a7- Explain the guidelines governing ethics, in addition to the quality standards of the practice.</p>
<p><b>B1- Analyze, deduce, extrapolate &amp; evaluation of information</b></p>	<p>b1- Select different histochemical staining b2- Compare vital processes in cell organs to keep cell life. b4- Conduct research studies that add to specialty and publish scientific articles and paper. b5- Manage discussions on basis of evidence and</p>

	<p>proofs and add to the specialty field through seminar</p> <p>b6- Plan and implement enhancement and improvement approaches to practice.</p> <p>b7- Appraise majority of problems according to the available data and take a decision in various professional situations.</p>
<b>B2- Solve the majority of problems in the specialty according to the available data (complete or incomplete)</b>	b7- Appraise majority of problems according to the available data and take a decision in various professional situations.
<b>B3- Conduct research studies that add to the existing specialty knowledge</b>	b4- Conduct research studies that add to the existing specialty knowledge
<b>B4- Publish scientific articles/papers (in indexed journals)</b>	b8- Prepare scientific articles/papers to be published in indexed journals.
<b>B5- Plan and implement (or supervise implementation of) enhancement &amp; Improvement approaches to practice</b>	b5- Manage discussions on basis of evidence and proofs and add to the specialty field through seminar
<b>B6- Take decisions in various professional situations (including dilemmas &amp; controversial issues)</b>	<p>b6- Plan and implement enhancement and improvement approaches to practice.</p> <p>b7- Appraise majority of problems according to the available data and take a decision in various professional situations.</p>
<b>B7- Add to the specialty field through creativity &amp; innovation</b>	b9- Add to the specialty field through creativity & innovation through thesis.
<b>B8- Manage discussions on basis of evidence and proofs</b>	b5- Manage discussions on basis of evidence and proofs and add to the specialty field through seminars.
<b>C1- Competent in all basic and all required advanced professional skills (to be determined according to the specialty board/ department)</b>	<p>c1- Apply the available tools to detect cellular contents</p> <p>c2- Demonstrate the different uses of stains.</p> <p>c3- Perform different special stains in various branches of histochemistry.</p> <p>c4- Interpret results from both light and electron</p>

	<p>microscopes</p> <p>c6- Competent in all basic and all acquired advanced professional skills, write and appraise reports and improve methods and tools used in specialty.</p> <p>C7- Use technology to advance practice</p>
<b>C2- Write and appraise reports</b>	c6- Competent in all basic and all acquired advanced professional skills, write and appraise reports and improve methods and tools used in specialty.
<b>C3- Evaluate and improve methods and tools used in specialty</b>	C8- Evaluate and improve methods and tools used in specialty through candidates' questionnaire.
<b>C4- Use technology to advance practice</b>	c3- Perform different special stains in various branches of histochemistry. C7- Use technology to advance practice.
<b>C5- Plan professional development courses to improve practice and enhance performance of juniors</b>	C9- Plan professional development courses to improve practice and enhance performance of juniors through candidates' questionnaire.
<b>D1- Communicate effectively using all methods</b>	d1- Work effectively as a part of teamwork. d3- Develop skills in observation and communications. d5- Teach and evaluate others and appropriately utilize time.
<b>D2- Use information technology to improve his/her professional practice</b>	d3- Develop skills in observation and communications. d6- Use information technology to improve professional practice and use different sources of information to obtain data.
<b>D3- Teach and evaluate others</b>	d1- Work effectively as a part of teamwork. d5- Teach and evaluate others and appropriately utilize time.
<b>D4- Perform self appraisal &amp; seek continuous learning</b>	d2- Evaluate reflectively on their own learning process. Develop skills, in self appraisal and seek continuous learning.
<b>D5- Use different sources of</b>	d6- Use information technology to improve

information to obtain data	professional practice and use different sources of information to obtain data.
D6- Work in teams as well as a member in larger teams	d1- Work effectively as a part of teamwork. d5- Teach and evaluate others and appropriately utilize time.
D7- Manage scientific meetings and appropriately utilize time	d2- Evaluate reflectively on their own learning process. Develop skills, in self appraisal and seek continuous learning. d3- Develop skills in observation and communications. d4- Distinguish problem solving competency. d5- Teach and evaluate others and appropriately utilize time. d6- Use information technology to improve professional practice and use different sources of information to obtain data.

#### 4- Curriculum structure and contents

4.a: program duration: 4 years on average

**4. b: program structure:**

4. b.i- No. of hours per week in each semester: 2hrs/week

Semester	Number of hours
First semester	4 hrs
Second semester	6 hrs
Third semester	7 hrs
Fourth semester	7 hrs

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4.b.ii- No. of credit hours	Lectures	11	Practical	13	Thesis	24	Total	48
	Compulsory	18	Elective	6	Optional	0		

4.b.ii- No. of credit hours of specialized courses No.  %

4.b.vi- No. of credit hours of other courses No.  %

4.b.vii- Practical/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 (18 hrs)

Code No.	Course Title	No. of credit hours	No. of hours /week	
			Lecture	Practical
1709801	Micro technique II	2	1	2
1709802	Cell Biology II	3	2	2
1709803	General Histology II	2	1	2
1709804	Functional Histology II	2	1	2
1709805.1	Non-enzyme Histochemistry II	2	1	2
1709805.2	Enzyme Histochemistry II	2	1	2
1709805.3	Immunohistochemistry II	3	2	2
1709807	Cellular disorders II	2	2	0
		<b>Total: 18</b>	11	14

### 5.2- Elective II (6 hrs)

Code No.	Course Title	No. of	No. of hours /week
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		credit hours	Lecture	Practical
1701820	Biochemistry	3	2	2
1701821	Molecular Biology	3	2	2
1702705	Cancer Chemistry II	3	3	0
1721821	Computer	3	2	2
1710820	Pathology	3	2	2

## 6- Program admission requirements

Postgraduate students with a M.Sc. in Histochemistry, Histochemistry and Cell Biology or an academic M.Sc. relevant to Histochemistry and Cell Biology.

## 7. Teaching and Learning Methods

**Add teaching method**

## 8- Regulations for progression and program completion

For the progression and completion of the program to obtain the degree of ....., the student must:

- 1- Complete 24 credit hours with CGPA of at least C+ through courses.
- 2- Complete 24 credit hours with through thesis.
- 3- Submit a thesis validity report by an examination committee approved by the department council and their members include at least two external examiners.

## 9- Evaluation of program intended learning outcomes

Evaluator	Tool	Sample
1- Senior students	questionnaire	65%
2- Alumni	questionnaire	45%
3- Stakeholders ( Employers )	meeting	10%
4- External Evaluator(S) External Examiner (s)	Report	External evaluator report :Dr. Ismail Sadek
5- Other		

**Program Coordinator:**

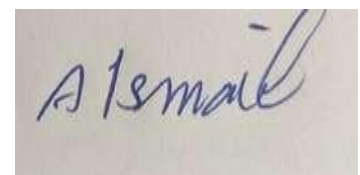
Name: Noura Abdel Kader Ahmed Matar

Signature:



Date: 29/8/2023

Department Head: Prof. Dr. Abdel Azim Ahmed Ismael



**Graduate Attributes of Ph.D. Program in Histochemistry and Cell Biology**

Generic Graduate Attributes of NAQAAE	Graduate Attributes of Doctor of Philosophy in Histochemistry and Cell Biology	Program Aims
	By the end of this program, Graduate of Doctor of Philosophy in Histochemistry and Cell Biology, <i>should be able to</i>	
Master the basics and methodologies of scientific research.	<ul style="list-style-type: none"> <li>- Classify cell organelles.</li> <li>- Discuss different branches of histochemistry.</li> <li>- Explain cellular disorders and their detection.</li> <li>- Recognize basic facts, theories of the specialty and recent advances in the field of practice.</li> </ul>	<ul style="list-style-type: none"> <li>-Be provided with knowledge, skills, and critical awareness to make a significant contribution to research.</li> <li>-Evaluate and judge scientific papers.</li> <li>-Explore how research comes out.</li> <li>- Conduct research studies that add to the existing specialty knowledge</li> </ul>
Work continuously to add to his/her knowledge in the field of specialty.	<ul style="list-style-type: none"> <li>-Add to the specialty field through creativity &amp; innovation through thesis.</li> <li>- Work effectively as a part of teamwork.</li> <li>- Teach and evaluate others and appropriately utilize time.</li> </ul>	<ul style="list-style-type: none"> <li>-Be provided with knowledge, skills, and critical awareness to make a significant contribution to research.</li> <li>- recognize basic principles of techniques and basic knowledge.</li> <li>- Conduct research studies that add to the existing specialty knowledge</li> </ul>
Apply the analytical and critical approach to knowledge in the field of specialty and related fields.	<ul style="list-style-type: none"> <li>-Apply the available tools to detect cellular contents.</li> <li>- Demonstrate the different uses of stains.</li> <li>- Perform different special stains in various branches of histochemistry</li> </ul>	<ul style="list-style-type: none"> <li>-Use available tools and stains to detect the cellular disorders by histochemistry and immunohistochemistry.</li> <li>-recognize basic principles of techniques and basic knowledge.</li> </ul>
Integrate knowledge in the field of specialty with related knowledge, deduce and develop relationships between them.	<ul style="list-style-type: none"> <li>- Compare vital processes in cell organs to keep cell life.</li> <li>- Conduct research studies that add to specialty and publish scientific articles and paper.</li> <li>- Manage discussions on basis of evidence and proofs and add to the specialty field through seminar</li> <li>- Plan and implement enhancement and improvement approaches to practice.</li> <li>- Recall the mutual relation between professional practice and effects on environment.</li> </ul>	<ul style="list-style-type: none"> <li>-Be provided with knowledge, skills, and critical awareness to make a significant contribution to research.</li> <li>-Use available tools and stains to detect cellular disorders by histochemistry and immunohistochemistry.</li> <li>-Recognize basic principles of techniques and basic knowledge.</li> </ul>

## Department of Histochemistry and Cell Biology



Demonstrate a deep awareness of current problems and modern theories in the field of specialty.	<ul style="list-style-type: none"> <li>-Plan and implement enhancement and improvement approaches to practice.</li> <li>-Appraise majority of problems according to the available data and take a decision in various professional situations.</li> </ul>	<ul style="list-style-type: none"> <li>- be provided with knowledge, skills and critical awareness to make a significant contribution to research.</li> <li>- Use available tools and stains to detect the cellular disorders by histochemistry and immunohistochemistry.</li> <li>-recognize basic principles of techniques and basic knowledge.</li> </ul>
Identify professional problems and find innovative solutions to solve them.	<ul style="list-style-type: none"> <li>-Appraise majority of problems according to the available data and take a decision in various professional situations.</li> <li>-Add to the specialty field through creativity &amp; innovation through thesis</li> </ul>	<ul style="list-style-type: none"> <li>-recognize basic principles of techniques and basic knowledge</li> <li>- Explore how research is come out.</li> </ul>
Master a wide range of professional skills in the field of specialty.	<ul style="list-style-type: none"> <li>- Competent in all basic and all acquired advanced professional skills, write and appraise reports and improve methods and tools used in specialty.</li> <li>-Develop skills in observation and communications.</li> </ul>	<ul style="list-style-type: none"> <li>-Be provided with knowledge, skills and critical awareness to make a significant contribution to research.</li> <li>- Conduct research studies that add to the existing specialty knowledge</li> </ul>
Develop new methods, tools and methods for professional practice.	<ul style="list-style-type: none"> <li>-Plan professional development courses to improve practice and enhance performance of juniors through candidates' questionnaire.</li> <li>-Use information technology to improve professional practice and use different sources of information to obtain data.</li> </ul>	<ul style="list-style-type: none"> <li>-Use available tools and stains to detect the cellular disorders by histochemistry and immunohistochemistry.</li> <li>-Recognize basic principles of techniques and basic knowledge.</li> </ul>
Use appropriate technological means to serve his professional practice.	<ul style="list-style-type: none"> <li>-Use information technology to improve professional practice</li> <li>- Use technology to advance practice.</li> </ul>	<ul style="list-style-type: none"> <li>-Use available tools and stains to detect the cellular disorders by histochemistry and immunohistochemistry</li> </ul>
Communicate efficiently and lead work teams in various professional scenarios.	<ul style="list-style-type: none"> <li>- Work effectively as a part of teamwork.</li> </ul>	<ul style="list-style-type: none"> <li>- Communicate effectively through oral presentations.</li> <li>-Establish work relationship with colleagues and work effectively as a part of a team</li> </ul>
Take Decision in light of available data.	<ul style="list-style-type: none"> <li>-take a decision in various professional situations.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct research studies that add to the existing specialty knowledge</li> </ul>

## Department of Histochemistry and Cell Biology



<p>Employ and develop available resources efficiently and work to find new resources.</p>	<p>-Plan professional development courses to improve practice and enhance performance of juniors through candidates' questionnaire.</p>	<p>-Recognize basic principles of techniques and basic knowledge. - Evaluate and judge of scientific paper. -Explore how research is come out</p>
<p>Show awareness of his/her role in community development and environmental preservation</p>	<p>- Work effectively as a part of teamwork. - Develop skills in observation and communications. - Teach and evaluate others and appropriately utilize time.</p>	<p>-Explore how research is come out. -Communicate effectively through oral presentations. - Establish work relationship with colleagues and work effectively as a part of a team</p>
<p>Act in a manner that reflects a commitment to integrity, credibility, and professionalism.</p>	<p>- Use information technology to improve professional practice and use different sources of information to obtain data.</p>	<p>-Conduct research studies that add to the existing specialty knowledge</p>
<p>Commit to continuous self-development and transfer his/her knowledge and experiences to others.</p>	<p>- Evaluate reflectively on their own learning process. Develop skills, in self appraisal and seek continuous learning.</p>	<p>- Establish work relationship with colleagues and work effectively as a part of a team</p>





ARS matrix for Ph. D degree in Histochemistry & Cell Biology.

ILOS ARS	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	C	C	D	D	D	D	D	D			
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6			
A1	X																																		
A2		X																																	
A3			X																																
A4				X																															
A5					X																														
A6						X																													
A7							X																												
A8								X																											
B1									X																										
B2										X																									
B3											X																								
B4												X																							
B5													X																						
B6														X																					
B7															X																				
B8																X																			
B9																	X																		
C1																		X																	





Teaching and Learning Methods Vs Courses Matrix (Degree: Ph.D) Code: 1209800

Teaching Methods	Courses Micro techniques II	Cell biology II	General Histology II	Functional Histology II	Non-enzyme histochemistry II	Enzyme histochemistry II	Immunohistochemistry II	Cell disorder II
Lecture	X	X	x	x	x	x	x	x
Practical/Clinical	X	X	x	x	x	x	x	
Brainstorming	X	X	x	x	x	x	x	x
Discussion Groups								
Problem Solving	x	X	x	x	x	x	x	x
Case Study								
Training Workshops								
Self-Directed Learning	x	X		x			x	x
e-learning		x					x	x
Project								