



كلية الطب  
جامعة أسيوط



Faculty of Medicine  
Quality Assurance Unit

***Master (M.Sc.) Degree Program and  
Courses Specifications for Master Degree  
in Histology***

**(According to currently applied Credit point by laws)**

***Histology Department  
Faculty of medicine  
Assiut University  
2021-2022/2022-2023***

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**Assiut University**  
**Faculty of Medicine**  
**Quality Assurance Unit (QAU)**

## **Master degree of Histology**

### **A. Basic Information**

- + Program Title: Master degree in histology**
- + Nature of the program: Single.**
- + Responsible Department: Histology and cell biology**  
**Faculty of Medicine - Assiut University**
- + Program Academic Director (Head of the Department):**  
**Prof. Dr. Nashwa Ahmed Mohamed Mostafa**
- + Coordinator (s):**
  - Principle coordinator: Dr. Nashwa Ahmed Mohamed**
  - Assistant Coordinator: Dr. Safaa Said Hassan**
- + Internal evaluators: Prof. Dr. Safaa Abd El -Maksoud**
- + External evaluator: 1– Prof. Dr. Hasan Sabry**  
**2- Prof. Dr Maher Emara.**
- + Date of Approval by the Faculty of Medicine Council of Assiut University: 23-9-2014**
- + Date of most recent approval of program specification by the Faculty of Medicine Council of Assiut University:**  
**27-11-2022.**
- + Total number of courses: 3 courses and 1 Elective**

## **B. Professional Information**

### **1- Program aims**

1/ 1. To enable candidates to get sufficient Knowledge of the structure and function of the body and its major organ systems and of the molecular and cellular mechanisms.

1/2-To enables candidates to keep with international standards of histology and cell biology searcher by teaching high level of practical skills, in addition to update medical knowledge as well as stress upon applied histology.

1/3- Ensure students become proficient in the field of histopathology, and are competent to handle, prepare and are able to comment on a wide range of specimens.

1/4- To update candidates in the field of search as area of molecular biology and cytogenetic studies, and enabling the candidates of making appropriate referrals to a sub-specialist in the research point.

1/5- To introduce candidates to the basics of scientific medical research.

1/6- The acquisition of life-long habits of reading, literature searches, consultation with colleagues, attendance at scientific meetings, and the presentation of scientific work that are essential for continuing professional development (CPD).

1/7-Enable candidates to work effectively, in partnership with other health professionals, support staff and service users.

1/8 -To provide the candidates with master degree to understand and get the best of published scientific research and do their own.

## **2- Intended learning outcomes (ILOs) for the whole program:**

### **2/1 Knowledge and understanding:**

- A. Explain the essential facts and principles of relevant basic sciences including Microtechnique, Histochemistry & Cytochemistry and Cytology related to Histology.
- B. Mention essential facts of clinical supportive sciences related to Histology.
- C. Demonstrate sufficient knowledge of the main subjects. Related to Histology.
- D. Give the recent and update developments in the most important themes related to Histology.
- E. Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to the field of Histology.
- F. Mention the basics and standards of quality assurance to ensure good practice in the field of Histology.
- G. Mention the ethical and scientific principles of medical research methodology.
- H. State the impact of common problems related to the field of Histology on the society and how good practice can improve these problems.

## **2/2 Intellectual outcomes**

- A- Correlate the relevant facts of relevant basic and clinically supportive sciences with reasoning, diagnosis and management of common problems of the Histology.
- B- Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical or practical situations related to Histology.
- C- Design and /or present a case or review (through seminars/journal clubs.) in one or more of common themes or problems relevant to the Histology field.
- D- Formulate management plans and alternative decisions in different situations in the field of the Histology.

## **2/3 Skills**

### **2/3/1 Practical skills**

- A. Demonstrate competently relevant laboratory skills related to Histology.
- B. Use the up to date technology for the conditions related to Histology.
- C. Develop plans for performing experiments related to Histology.
- D. Carry out common experiments related to Histology.
- E. Counsel and educate students, technicians and junior staff, in the lab about conditions related to Histology; including handling of samples, devices, safety and maintenance of laboratory equipments.

- F. Use information technology in some of the situations related to Histology.
- G. Share in providing health care services aimed supporting patient care, solving health problems and better understanding of the normal structure and function.
- H. Write competently all forms of professional reports related to the Histology (lab reports, experiments reports,).

## **2/3/2 General skills**

### **Including:**

- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

## **Practice-Based Learning and Improvement**

- A- Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).
- B- Appraises evidence from scientific studies.
- C- Conduct epidemiological Studies and surveys.
- D- Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; and support their own education.

- E- Facilitate learning of students, lab technical staff and other health care professionals including their evaluation and assessment.

### **Interpersonal and Communication Skills**

- F- Maintain therapeutic and ethically sound relationship with patients, their families, lab technical staff and other health professionals.
- G- Elicit information using effective nonverbal, explanatory, questioning, and writing skills.
- H- Provide information using effective nonverbal, explanatory, questioning, and writing skills.
- I- Work effectively with others as a member of a team or other professional group.

### **Professionalism**

- J- Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.
- K- Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices.
- L- Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities.

### **Systems-Based Practice**

- M- Work effectively in relevant academic and health care delivery settings and systems including good administrative and time management.



N- Adopt cost-effective practice and resource allocation that does not compromise quality of services.

O- Assist patients in dealing with system complexities.

### **3- Program Academic Reference Standards (ARS) (Annex 2)**

#### **Academic standards for master degree in histology**

Assiut Faculty of Medicine developed master degree programs' academic standards for different academic specialties.

In preparing these standards, the General Academic Reference Standards for post graduate programs (GARS) were adopted. These standards set out the graduate attributes and academic characteristics that are expected to be achieved by the end of the program.

These standards were approved by the Faculty Council on 17-6- 2009  
These standards were revised and approved without changes by the Faculty Council on 23-9-2014. These standards were recently revised and reapproved without changes by the Faculty Council on 27-11-2022

### **4- Program External References.(Benchmarks)**

1-ACGME (Accreditation Council for Graduate Medical education)  
[http://www.acgme.org/acWebsite/navPages/nav\\_Public.asp](http://www.acgme.org/acWebsite/navPages/nav_Public.asp)

2. Student Handbook (for Course approved by Senate of Imperial College), London: University of London, Imperial College...( MSc in Clinical Cytology). [www.ic.ac.uk/pgaf](http://www.ic.ac.uk/pgaf)

## **5. Program Structure and Contents**

**A. Duration of program: 3-5 years**

**B. Structure of the program:**

Total number of points: 180 (20 out of them for thesis)

Didactic 32 (17.8%), practical 126 (70%) thesis 20 (11.1%)

Elective course 2 (1.1%)

Total 180

First part

Didactic 8 (20%), practical 30 (75%) elective course 2 (5%) total 40.

Second part

Didactic 24 , (20%) practical 96 (80%) total:120.

**According the currently applied bylaws:**

Total courses 160 CP

Compulsory courses: 98.9%

Elective course: 2 credit point: 1.1%

	<b>Points</b>	<b>% from total</b>
▪ <b>Basic science courses</b>	<b>18</b>	<b>10%</b>
<b>Humanity and social courses</b>	<b>2</b>	<b>1.1%</b>
▪ <b>Speciality courses</b>	<b>140</b>	<b>77.8%</b>
▪ <b>Others ( Computer, ...)</b>		
▪ <b>Field training</b>		
<b>Thesis</b>	<b>20</b>	<b>11.1%</b>

**C. Program Time Table**

**A. Duration of program 3 years maximally 5 years divided into**

○ **Part 1: (One year)**

Program-related basic science courses and ILOs + elective courses

Students are allowed to sit the exams of these courses after 12 months from applying to the M Sc degree.

One elective course can be set during either the 1<sup>st</sup> or 2<sup>nd</sup> parts.

○ **Thesis**

For the M Sc thesis;

MSc thesis subject should be officially registered within 6 months from application to the MSc degree,  
Discussion and acceptance of the thesis could be set after 12 months from registering the MSc subject;  
It should be discussed and accepted before passing the second part of examination)

- **Part 2 (2 years)**

Program –related speciality courses and ILOs

Students are not allowed to sit the exams of these courses before 3 years from applying to the MSc degree.

The students pass if they get 50% from the written exams and 60% from oral and clinical/practical exams of each course and 60% of summation of the written exams, oral and clinical/practical exams of each course

Total degrees 1600 marks.

400 marks for first part

1200 for second part

Written exam 40% - 70%.

Practical and oral exams 30% - 60%.

#### D. Curriculum Structure: (Courses):

✚ courses of the program:

Modules/ Units delivering courses and student work load list	Course Code	Core Credit points		
		Didactics	training	total
<b>First Part</b>				
<b>Basic science courses (8CP)</b> 1) Course 1: Histology 1 2) Course2:General Pathology	HIS202A	8		8
	HIS205			
<b>Elective courses*</b>	2CP			
<b>Practical training and scientific activities</b>				
<b>A. Practical training in compulsory academic Basic science courses (10 CP)</b>	HIS202A HIS205		10	10
<b>B. Practical training in Speciality course (20 CP)</b>	HIS202B		20	20
<b>Total of the first part</b>		10	30	40
<b>Second Part</b>				
<b>Speciality courses Speciality Clinical Work</b>				
<b>Speciality Courses</b> 3) Course 3 (Histology 2) Unit 1: Cytology 2 Unit 2: General Histology Unit 3: Special Histology Unit 4: Cytogenetics	HIS202B§	24		24
<b>Training and practical activities in Histology (96 CP)</b>	HIS202B		96	96
<b>Total of the second part</b>		24	96	120
<b>Thesis</b>	20			
<b>Total of the degree</b>	180			

**# Didactic (lectures, seminars, tutorial)**

\* Elective courses can be taken during either the 1<sup>st</sup> or 2<sup>nd</sup> parts.

**Student work load calculation:**

Work load hours are scheduled depending on the type of activities and targeted competences and skills in different courses

**Elective Courses#:**

- Medical statistics.
- Evidence based medicine.
- Medicolegal Aspects and Ethics in Medical Practice and Scientific Research
- Quality assurance of medical education
- Quality assurance of clinical practice.
- Hospital management

# One of the above mentioned courses are prerequisites for fulfillment of the degree.

**Thesis:**

20 CP are appointed to the completion and acceptance of the thesis.

**Histology Course**

Units' Titles' list	% from total Marks	Level (Year)	Core Credit points		
			Didactic	training	Total
1-Unit 1 Cytology	16.6%	2	4	16	20
2-Unit 2 General Histology	25%	2	6	24	30
3-Unit 3 Special Histology	41.6%	2,3	10	40	50
4-Unit 4 Cytogenetics	16.6%	3	4	16	20
			24	96	120

## 6. Courses Contents (Annex 1)

The competency based objectives for each course/module/rotation are specified in conjunction with teaching/training methods, requirements for achieving these objectives and assessment methods.

**See Annex 1 for detailed specifications for each course/ module**

**Annex 6: Program Matrix**

## 7-Admission requirements

 **Admission Requirements (prerequisites) if any :**

### **I. General Requirements:**

- a. MBBCh Degree from any Egyptian Faculties of Medicine
- b. Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
- c. One year appointment within responsible department (for non Assiut University based registrars)

### **II. Specific Requirements:**

- Fluent in English (study language)

## **VACATIONS AND STUDY LEAVE**

The current departmental policy is to release working candidate from their duties for 10-15 days prior to the scheduled date for the first and final certifying Master Degree examination

### **FEES:**

As regulated by the postgraduate studies rules and approved by the faculty vice dean of post graduate studies and the faculty and university councils.

## 8-Progression and completion requirements

- ✚ Examinations of the first part could be set at 12 months from registering to the MSc degree.
- ✚ Examination of the second part cannot be set before 3 years from registering to the degree.
- ✚ Discussion of the MSc thesis could be set after 1 year from officially registering the MSc subject before setting the second part exams.
- ✚ The minimum duration of the program is 3 years.

### The students are offered the degree when:

1. Passing the exams of all basic science, elective and speciality courses of this program as regulated by the post graduates approved rules by the faculty council.
2. Completing all scheduled CP and log book (minimum 80%).
3. Discussion and acceptance of the MSc\_thesis.

## 9- Program assessment methods and rules (Annex IV)

Method	ILOs measured
Written examinations: Structured essay questions Objective questions MCQ Problem solving	K & I
Practical: Slides OSPE	K ,I, P &G skills
Structured oral	K ,I &G skills
Logbook assessment	All

Research assignment	I &G skills
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### Weighting of assessments:

Courses	Course code	Degrees			
		Written Exam	Oral Exam	Practical / I Exam	Total
<b>First Part</b>					
<b>Basic academic Courses:</b>					
1- Histology I	HIS202A	150	50	50	250
2-General Pathology	HIS205	75	40	35	150
<b>Total of the first part</b>		225	90	85	400
<b>Second Part</b>					
<b>Speciality Courses:</b>					
<b>Histology 2</b>					
1-Unit 1 (Cytology)	HIS202B	100			
2-Unit 2 (General Histology)	HIS202B	150			
3-Unit 3 (Special Histology)	HIS202B	150			
4-Unit 4 (Cytogenetic)	HIS202B	100			
5- General MCQ		200			
<b>Total of the degree</b>		700	300	200	1200
<b>Elective course</b>		50	50		100

\* 25% of the oral exam for assessment of logbook

**Total degree 1600**

**400 marks for first part**

**1200 for second part**

**Written exam --58---% (700 marks).**

**Practical and oral exams 42% (500 marks)**



Elective course:100 marks

### Examination system:

#### ➤ First part:

- Written exam two papers 3 hours for Histology 1 and 2 hours for General Pathology + Oral exam +Practical exam

#### ➤ Second part:

- Written exam five papers 3 hours for General and Special Histology and 2 hours for cytology, Cytogenetic and General MCQ Exam + Oral exam+ practical exam

#### ➤ Elective courses

- Written exam one paper 1 hour in Elective course + Oral & Practical exam

### 10-Program evaluation

By whom	Method	sample
Quality Assurance Unit	Reports Field visits	#
Internal evaluators	Report	1
External Evaluator (s):According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits Questionnaires	#
Senior students	Questionnaires	#
Alumni	Questionnaires	#

**#Annex 5 contains evaluation templates and reports (joined in the departmental folder)**

## 11-Declaration

**We certify that all of the information required to deliver this program is contained in the above specification and will be implemented.**

**All course specifications for this program are in place.**

<b>Contributor</b>	<b>Name</b>	<b>Signature</b>	<b>Date</b>
▪ Program Principle Coordinator:	<b>Prof. Dr. Nashwa Ahmed Mohamed</b>		<b>1-2021</b>
▪ Head of the Responsible Department (Program Academic Director):	<b>Prof. Dr. Nashwa Ahmed Mohamed</b>		<b>1-2021</b>

# Annex 1, Specifications for Courses / Modules

## Annex 1: specifications for courses

### Basic Course (Course 1) (Histology 1) Unit1-Microtechnique

- Name of department: Histology Department
- Faculty of medicine
- Assiut University
- 2020-2021/2021-2022

#### 1. Unit data

Unit Title: Micro techniques

+ Unit code: HIS202A

+ Speciality Histology

+ Number of credit points: total: 3 Didactic 1 (33.3 %) practical 2 ( 66.6%)

Department (s) delivering the unit: Histology and cell biology

Faculty of Medicine- Assiut University

+ Coordinator (s):

-Unit coordinator: Prof. Dr. Sohair Abdelbaky Mohamed Eltony

+ Date last reviewed: 1-2021.

+ General requirements (prerequisites) if any:

-MBBCh Degree from any Egyptian Faculties of Medicine

-Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education

-Regulatory rules of postgraduate studies of Assiut faculty of medicine

+ Requirements from the students to achieve unit ILOs are clarified in the joining log book.

## 2. Unit Aims

- 1-**Demonstrate** basic Health and safety aspects of working in a laboratory environment.
2. **Master** training skills in the Laboratory aspects of the preparation, cutting and staining of histological sections. Become familiar with the various staining methods and their applications and also appreciate the reflection of the method used on the picture observed.
3. **Use** departmental protocols for the handling; of specimens including identification, documentation, entering specific data on to computer and measures to prevent specimen mix-ups.

## 3. Unit intended learning outcomes (ILOs):

### A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p><b>A. Demonstrate Principles of the following;</b></p> <p>❖ <b><u>Preparation of tissue for light microscopy. It includes :</u></b></p> <p>I- <u>Fixation of tissues</u></p> <p>a- Effects of fixatives</p> <p>b- Common fixatives</p> <p>II - <u>Basic methods of study in histology.</u></p> <p>Tissue processing for light and electron microscopes.</p> <p>* Dehydration and Clearing</p> <p>* Embedding</p> <p>* Sectioning. Possess sufficient manual dexterity to perform Trimming safely and accurately, without damage to</p>	<p>Didactic (lectures, seminars, tutorial)</p> <p>- journal club,</p> <p>-Critically appraised topic,</p> <p>-Educational prescription – Demonstrate of how to process and stain the specimens in</p>	<p>1. Procedure / stains</p> <p>Log book</p> <p>2. Oral exam</p> <p>3. Written exam</p>

tissues. * mounting and staining * Freeze- drying preparation III- <u>The theory and practice of staining</u> * Objectives of Histological staining methods IV- <u>The structure of dyes used in histology</u> * The mode of action of dye staining Common Histological Stains and Reactions	the research laboratory	
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### **B. Intellectual outcomes**

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
A. Apply the facts of basic sciences which are appropriate to speciality for example: Training in the Laboratory aspects of the preparation, cutting and staining of histological sections. Become familiar with the various staining methods and their applications and also appreciate the reflection of the method used on the picture observed.	Didactic (lectures, seminars, tutorial)	Written and oral examination -Log book
B. Apply clinically supportive sciences which are appropriate to the following areas:eg. The use of departmental protocols for the handling; of specimens including identification, documentation, entering specific data on to computer	Didactic (lectures, seminars, tutorial)	Written and oral examination -Log book
C. Demonstrate an investigatory and analytic thinking (problem solving: Appreciate the reflection of the method used on the picture observed	Didactic (lectures, seminars, tutorial)	Written and oral examination -Log book

### C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
<p>A. Perform the following basic lab skills essential to the course:</p> <ul style="list-style-type: none"> <li>➤ specimen dissection, macroscopic description</li> <li>➤ Tissue processing for light and electron microscopes.</li> <li>➤ Sectioning. Possess sufficient manual dexterity to perform Trimming safely and accurately, without damage to tissues.</li> <li>➤ Various staining methods and their applications.</li> </ul>	<p>Lecture - seminar -Direct observation of the practical work as :  Dissection, processing of the specimens, sectioning of the paraffin blocks and Making different types of staining techniques.</p>	<p>- log book -Objective structure -Check list on steps of practical training of all steps of staining</p>
<p>B. Use Advanced Visualization Procedures as digital imaging techniques that employ computer technology to capture and manipulate histologic images (Digital Imaging Techniques)</p>	<p>Lectures. -Practical teaching. -Seminars.</p>	<p>Written exam. -Oral exam. Practical Exam</p>
<p>C. To recognize - the microscopic features of tissue structure in normality and any deviation from normal, as appropriate to one's level of experience. reflection of - the method used on the picture observed .</p>	<p>Lectures. -Practical teaching. -Seminars.</p>	<p>Written exam. -Oral exam. Practical Exam</p>
<p>D. Interpret the following - Ultrastructural finding after some</p>	<p>Lectures. -Practical</p>	<p>Written exam.</p>

experimental works - Immunohistochemical results after using different antibodies.	teaching. -Seminars.	-Oral exam. Practical Exam
E. Use information technology to support decisions in common situations related to the unit.	Lectures. -Practical teaching. -Seminars.	Written exam. -Oral exam. Practical Exam

### D. General Skills

#### Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (audit, logbook).	Dissection ,manual processing and staining Observation and supervision Written & oral communications	Written essays, Dissertations ,oral presentation in seminars, team working skills through collaborative projects, students representative work, social and cultural activities Log book requirement.
B. Locate, appraise, and assimilate evidence from scientific studies related to one of this		



module's staining techniques		
C. Use information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars		
D. Facilitate the learning of students the different Methods of preparation of tissues for examination.		

### **Interpersonal and Communication Skills**

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
E. Create and sustain an ethically sound relationship with students and others as a member of Research work team in the processing , staining and imaging of the slides.	Observation & supervision Didactic	team working skills through collaborative projects, students representative work, Log book requirement.
F .perform the following oral communications: -About the result of the experimental work		
G. fill the following reports: -Pre-experiment sheet Final comment on the results of the experiment		

### Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
H. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	1. Objective structured practical examination 2. student survey
I. Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information,		3-social and cultural activities Log book requirement.

### Systems-Based Practice

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
J. Avoid abuse of the system as microscopes, slides and computers	Observation & supervision Didactic	Student survey -Log book requirement
K Work effectively in such research workers team and staff members systems related to the module		

**4. Unit contents (topic s/modules/rotation  
Course Matrix)**

**Time Schedule: First Part**

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Fixation of tissues	A	A-C	A-E	A-K
Basic methods of study in Histology	A	A-C	A-E	A-K
Theory and practice of staining	A	A-C	A-E	A-K
Structure of dyes used in Histology	A	A-C	A-E	A-K

**5. Methods of teaching/learning:**

1. Laboratory training
2. Literatures, Seminars & Presentations
3. oral communication & observation Senior staff experience
4. Observation & supervision Seminars, Lectures, Hand on workshops.

**6. Methods of teaching/learning: for students with poor achievements**

- 1.Extra didactic (lectures, seminars, tutorial)
- 2.Extra laboratory work

**7. Assessment methods:**

- i. Assessment tools:
  - Practical examination
  - Written oral examinations.
  - Simulation Record review (report), Log book, Chick list
  - , Senior staff opinion
- ii. Time schedule: At the end of the first part
- iii. Marks: 60

## 8. List of references

### i. Lectures notes

✚ Staff members print out of lectures.

### ii. Essential books

1- Bancroft's Theory and Practice of Histological techniques *Bancroft, and Stevens, (2008)*

2- Color Textbook of Histology. Gartner and –Hiatte , 4<sup>th</sup> Edition, 2017

3- Carleton's Histological Technique, 1882

### iii. Recommended books

1- Junqueira's Basic Histology: Text and Atlas, NY: McGraw-Hill; 14<sup>th</sup> Edition, 2016

2- Bloom and Fawcett Concise Histology. D. W. Fawcett (Ronald P. Jensh, Contributing Editor). Chapman and Hall, 1998

### iv. Periodicals, Web sites, ... etc

[www.ic.ac.uk/pgaf](http://www.ic.ac.uk/pgaf); email: [pgmedreg@ic.ac.uk](mailto:pgmedreg@ic.ac.uk)

## 9. Signatures

<b>Unit Coordinator:</b>	<b>Head of the Department:</b>
<b>Date:</b>	<b>Date:</b>

**(Course 1) (Histology 1)**  
**Unit 2: Histochemistry and cytochemistry**

**1. Unit data**

- + Unit Title: Histochemistry and cytochemistry.**
- + Unit code: HIS202A**  
**Speciality: Histology**
- + Number of credit points: total:3.5 Didactic 1.5 (42.9%) practical 2 ( 57.1%)**
- + Department (s) delivering the unit: Histology and cell biology**
- + Coordinator (s):**  
**-Unit coordinator: Prof. Dr. Kawther Abdelhameed**
- + Date last reviewed: 1-2021**
- + General requirements (prerequisites) if any:**
  - MBBCh Degree from any Egyptian Faculties of Medicine
  - Equivalent Degree from medical schools abroad approved by the Council of Assiut University
  - Regulatory rules of postgraduate studies of Assiut faculty of medicine
- + Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

## 2-Unit Aims

1-**Master training skills** in the Laboratory aspects of the cutting and staining using Different Cytochemical, histochemical and Immunohistochemical histological sections.

2- Become familiar with the various staining methods and their applications and also appreciate the reflection of the method used on the picture observed .

3-**Handle professionally** Laboratory management: Trainees should take an interest in the management issues occurring in their departments and avail themselves of any opportunity to attend departmental meetings where such issues are discussed.

## 3. Unit intended learning outcomes (ILOs):

### A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Demonstrate Principles of</p> <p>❖ <b><u>light and electron microscopies.</u></b></p> <p>➤ <b><u>Light microscopy.</u></b></p> <p>* Limit of resolution and magnification</p> <p>* Types of light microscopes.</p> <p>Phase contrast m</p> <p>Dark field m.</p> <p>Flourescence m.</p> <p>Polarizing m.</p> <p>confocal microscopy.</p> <p>➤ <b>General principle of electron microscopy</b></p> <p>➤ <b>Types of electron microscopy.</b></p> <p>Transmission electron microscope (TEM) &amp; Freeze-Fracture Technique</p>	<p>Didactic (lectures, seminars, tutorial)</p> <p>- Induction programme for orientation, introduction to library and information technology, and to the Histology Department</p> <p>- MSc Student Handbook, which includes descriptions of each module.</p> <p>A large community of postgraduate research students and postdoctoral research workers who work on</p>	<p>Procedure</p> <p>- stains</p> <p>- Log book</p> <p>- Oral exam</p> <p>- Written exam</p>

<p>Scanning electron microscope (SEM)</p> <p>High voltage electron microscopy(H.V.TEM)</p> <p>➤ <b>Comparison of L.M.&amp; E.M.</b></p> <p>➤ <b>Set up a microscope with ergonomic safety and operate it effectively.</b></p> <p><b>B. Describe the details of ;</b></p> <ul style="list-style-type: none"> <li>- Cytochemical methods, their nature, types and limitations</li> <li>--- Cytochemistry and histochemistry of protein,nucleic acid and nucleoproteins</li> <li>- Carbohydrate and mucosubstance</li> <li>- Lipids</li> <li>--- Enzyme histochemistry</li> <li>--- Immunohistochemistry</li> <li>--- techniques of Autoradiography</li> <li>---details of Some special histochemical methods <ul style="list-style-type: none"> <li>❖ Metachromasia</li> <li>❖ Schiff's reagents</li> <li>❖ Azo- dyes</li> </ul> </li> </ul>	<p>Cytology-based projects.</p> <ul style="list-style-type: none"> <li>- Library and other learning resources and facilities at the university.</li> <li>- Dedicated computing facilities with 24 h access.</li> <li>- An MSc staff - student committee, which meets three times per year.</li> <li>- A large teacher base including many 'outside' speakers. Access to postgraduate 'Research in Progress' and Journal clubs that occur on the college day.</li> </ul>	
<p><b>C.</b> Mention techniques that employ computer technology to capture and manipulate histologic images (Digital Imaging Techniques)</p>		

## B. Intellectual outcomes

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
<p>A. Apply the facts of basic sciences which are appropriate to speciality in clinical reasoning, diagnosis and management of certain diseases for example: Plan and execute safely a series of experiments :</p> <p>Cytochemical ,histochemical and Immunohistochemical that might help in identification and differentiation between certain cellular types .</p>	<p>Didactic (lectures, seminars, tutorial)</p>	<p>Written and oral examination -Log book</p>
<p>B. Apply clinically supportive sciences which are appropriate to the following areas:eg. -A spotlight on the Digital imaging techniques that employ computer technology to capture and manipulate histologic images</p>		
<p>C. Demonstrate an investigatory and analytic thinking (problem solving): Analyse experimental and diagnostic results and critically evaluate their strength and validity.</p>		

## C. Practical skills

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
<p>A. <b>Apply</b> setting up a microscope with ergonomic safety and operate it effectively -Plan and execute safely a series of experiments : Cytochemical ,histochemical and Immunohistochemical. - using different autoradiographic methods</p> <p>B. Use laboratory-based methods to generate data</p> <p>C. Analyse experimental and diagnostic results and critically evaluate their strength and validity</p>	<p>-Lecture - seminar -Direct observation of the practical work as :</p> <p>Making different types of histochemical, Immunohistochemical staining techniques. And different</p>	<p>log book - Objective structure -Check list on steps of practical training of all steps of staining</p>



<p>D. Prepare and present technical reports</p> <p>E. Use the scientific literature and databases effectively</p> <p>F- Acquire A spotlight on the Digital imaging techniques that employ computer technology to capture and manipulate histologic images (Digital ImagingTechniques)</p> <p>G. Interpret information at a high level.</p> <p>- immunohistochemical results after using specific antibodies as well as ultrastructural deviation from normal that might reflect the underlying pathological condition.</p>	<p>Autoradiographic methods</p>	

**D. General Skills**  
**Practice-Based Learning and Improvement**

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology (audit, logbook).	Dissection ,manual processing and staining Observation and supervision Written & oral communications	-Written essays, dissertations, oral presentation in seminars, team working skills through collaborative projects, students representative work, social and cultural activities Log book requirement
B. Locate, appraise, and assimilate evidence from scientific studies related to one of this module's staining techniques		
C. Use information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars		
D. Facilitate the learning of students the different autoradiographic techniques.		

**Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Create and sustain an ethically sound relationship with students and others as a member of research work team in the processing ,staining and imaging of the slides.	Observation & supervision Didactic	team working skills through collaborative projects, students representative work, Log book requirement
F. perform the following oral communications: -About the result of the experimental work		
G. fill the following reports: -Pre-experiment sheet. -Final comment on the results of the experiment		

### Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
H. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	Objective structured practical examination 2.student survey
I. Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information		3-social and cultural activities -Log book requirement

### Systems-Based Practice

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
J. Work effectively in such health care delivery settings and systems related to the module	Observation & supervision Didactic	.student survey Log book requirement
K. Practice cost-effective health care and resource allocation that does not compromise quality of care in this module		
L. Assist students and technician in dealing with system complexities.		

**4. Unit contents (topic s/modules/rotation  
Course Matrix**

**Time Schedule: First Part**

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
<b>Principles of light and electron microscopies</b>	A	A	A	A-L
<b>Details of Cytochemistry and histochemistry of protein, nucleic acid and nucleoproteins Carbohydrate and mucosubstance Lipids</b>	B	A-C	A-E,G	A-L
<b>Enzyme histochemistry</b>	A	A	A-E	A-L
<b>Immunohistochemistry</b>	A	A	A-E,G	A-L
<b>Autoradiography</b>	A	A	A-E	A-L
<b>Some special histochemical methods</b>	A	A	A-E,G	A-L
<b>Digital Imaging Techniques</b>	C	B	F	A-L

**5. Unit Methods of teaching/learning:**

- 1-Laboratory training
- 2- Literatures, Seminars & Presentations
- 3- oral communication & observation Senior staff experience
- 4-Observation & supervision Seminars, Lectures, Hand on workshops

**6. Unit Methods of teaching/learning: for students with poor achievements**

1. Extra didactic (lectures, seminars, tutorial)
2. Extra laboratory work

**7. Unit assessment methods:**

**i. Assessment tools:** Practical examination Written and oral examination . Simulation Record review (report), Log book, Chick list, Senior staff opinion

**ii. Time schedule:** At the end of the first part

**iii. Marks:** 65

## 8. List of references

### i. Lectures notes

✚ Staff members print out of lectures.

### ii. Essential books

1- Bancroft's Theory and Practice of Histological  
*Bancroft, and Stevens, (2008)*

2- Color Textbook of Histology. 3rd Edition Gartner and –  
Hiatt, 4<sup>th</sup> Edition, 2017

### iii. Recommended books

1- Junqueira's Basic Histology: Text and Atlas, NY:  
McGraw-Hill; Thirteenth Edition 2016

2- Bloom and Fawcett Concise Histology. D. W. Fawcett  
(Ronald P. Jensch, Contributing Editor). Chapman and Hall 1998

### iv. Periodicals, Web sites, ... etc

Journal of electron microscopy

Egyptian J of Histology

[www.ic.ac.uk/pgaf](http://www.ic.ac.uk/pgaf); email: [pgmedreg@ic.ac.uk](mailto:pgmedreg@ic.ac.uk)

## 9. Signatures

<b>Unit Coordinator:</b>	<b>Head of the Department:</b>
<b>Date:</b>	<b>Date:</b>

## Course 1 Unit 3( Cytology1)

### 1. Unit data

- ✚ **Unit Title: Cytology 1**
- ✚ **Unit code: HIS202A**
- ✚ **Speciality :Histology**
- ✚ **Number of credit points: total: 4.5 Didactic 2.5 (55.5%)  
practical 2 (44.5 %)**
- ✚ **Department (s) delivering the unit: Histology and cell  
biology**  
**Faculty of Medicine- Assiut University**
- ✚ **Coordinator (s):**
  - **Unit coordinators: Dr. Manal Mohamed Sayed  
Dr. Ola Abdeltawab**
- ✚ **Date last reviewed: 1-2021**
- ✚ **General requirements (prerequisites) if any:**
  - MBBCh Degree from any Egyptian Faculties of Medicine
  - Equivalent Degree from medical schools abroad approved  
by the Ministry of Higher Education
  - Regulatory rules of postgraduate studies of Assiut faculty  
of medicine
- ✚ **Requirements from the students to achieve unit ILOs are  
clarified in the joining log book.**

## 2. Unit Aims

- 1- To provide students with comprehensive knowledge of the morphological changes found in cells in health and any deviation from normal.
- 2- A principal goal of the course is to make students aware of recent advances in molecular and cellular biology and to train students in basic research methodology. The course will introduce students to modern investigative techniques for studying the cell which include advanced microscopy, immunocytochemistry, and molecular biology as well as the use of automated equipment for cellular imaging and morphometric studies.
- 3- Ensure students become aware of the scope of cytology and become proficient in the collection, preparation and interpretation of a wide range of cytological specimens.

## 3. Unit intended learning outcomes (ILOs):

### A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Demonstrate Principles of - <b>Cell biology</b></p> <ul style="list-style-type: none"> <li>• Cell membrane and its modifications</li> <li>• Transport of materials across the cell membrane</li> </ul> <p><b><u>-Physiologic principles of ultrastructure of the nucleus and its component.</u></b></p> <ul style="list-style-type: none"> <li>-types of chromatin and sex chromatin</li> <li>-Structure of Chromosomes ,methods of studying of the karyotype . Meiosis , also spot light</li> </ul>	<p>Didactic (lectures, seminars, tutorial)</p> <p>- Induction programme for orientation, introduction to library and information technology, and to the Histology Department</p> <p>- MSc Student Handbook, which includes descriptions of each module.</p> <p>A large community of postgraduate research</p>	<p>- Procedure /</p> <ul style="list-style-type: none"> <li>- stains</li> <li>- Log book</li> <li>- Oral exam</li> <li>- Written exam</li> </ul>

<p>on the clinical correlations as:  abnormal chromosome number  that might occur in meiosis  (aneuploidy) . Down syndrome, for  example, (trisomy 21)</p> <p><b>- Cytoplasm</b>  cytoplasmic matrix and  cytoskeleton  Cell organelles with spotlight on the  CLINICAL CORRELATIONS as: lysosomal  storage disorder and glycogen  storage disorders</p> <p><b>- Cell inclusion</b></p> <p><b>- Cell activities</b>  * Cell division      * Cell  locomotion  * Endocytosis      * Exocytosis</p> <p><b>- Cell cycle</b> with spotlight on mitosis  and factors controlling it.</p> <p><b>-Cell development</b></p>	<p>students and  postdoctoral research  workers who work on  Cytology-based  projects.</p> <ul style="list-style-type: none"> <li>- Library and other  learning resources and  facilities at the  university.</li> <li>- Dedicated computing  facilities with 24 h  access.</li> <li>- An MSc staff - student  committee, which  meets three times per  year.</li> <li>- A large teacher base  including many ‘outside’  speakers. Access to  postgraduate ‘Research  in Progress’ and Journal  clubs that occur on the  college day.</li> </ul>	
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## **B. Intellectual outcomes**

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
<p>A. Apply the facts of basic sciences which are appropriate to speciality in clinical reasoning, diagnosis and management of certain diseases for example: the CLINICAL CORRELATION between Cell organelles and: lysosomal storage disorder ,glycogen storage disorders and mitochondrial diseases.</p> <p>B. Apply:-clinically supportive sciences which are appropriate to the following areas:eg. types of chromatin and sex chromatin,structure of Chromosomes ,methods of studying of the karyotype gives information on the aetiology of some chromosomal diseases.</p> <p>-Cell development</p> <p>C. Demonstrate an investigatory and analytic thinking (problem solving) approach to clinical situations as</p> <ul style="list-style-type: none"> <li>- diagnosis of any tissue specimen.</li> <li>- different Receptors and mechanism of hormone action</li> </ul>	<p>Didactic (lectures, seminars, tutorial)</p>	<ul style="list-style-type: none"> <li>- Log book</li> <li>-Oral exam</li> <li>- Written exam</li> </ul>

### C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
<p>A. Perform the following basic lab skills essential to the course:</p> <p>B. Plan and execute safely a series of experiments</p> <p>C. Use laboratory-based methods to generate data</p> <p>D. Analyse experimental and diagnostic results and critically evaluate their strength and validity</p> <p>.E Prepare and present technical reports</p> <p>F-Use the scientific literature and databases effectively</p> <p>G. Interpret information at a high level of immunohistochemical results after using specific antibodies as well as ultrastructural deviation from normal that might reflect the underlying pathological condition.</p>	<p>Lecture</p> <p>- seminar</p> <p>-Direct observation of the practical work as :</p> <p>Differentiation between different types of tissues stained by different types of histochemical, Immunohistochemical staining techniques and also identification and differentiation between different tissues when examined by TEM as well as SEM</p>	<p>log book</p> <p>- Objective structure</p> <p>-Check list on the different item that were written in the comment on different stains and / or tissues</p>

**D. General Skills**  
**Practice-Based Learning and Improvement**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook).	Different slides and photoes Observation	Written essays, dissertations,
B. Locate, appraise, and assimilate evidence from scientific studies related to one of this module's staining techniques and its reflection on different types of tissues	- Written & oral communications  -Practical	oral presentation in seminars, team working skills through collaborative projects,
C. Use information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars	experimental and diagnostic skills are developed through	students representative work, social and cultural activities
D. Facilitate the learning of students the different Shapes and/colours of the same tissue after using different staining techniques	laboratory and project work	Log book requirement

## Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
<p>E Create and sustain a ethically sound relationship with students and others as a member of Research work team in the imaging of the slides and spot diagnosis of different types of tissues after staining by different staining methods</p>	<p>Observation &amp; supervision Didactic</p>	<p>team working skills through collaborative projects, students representative work, Log book requirement</p>
<p>F. perform the following oral communications: -About the result of the experimental work</p>		
<p>G .fill the following reports: -Pre-experiment sheet.</p>		

## Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
H. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	Objective structured practical examination 2.student survey 3-social and cultural activities Log book requirement
I Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information		

### **Systems-Based Practice**

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
J. Work effectively in such health care delivery settings and systems related to the module.	Observation & supervision Didactic	student survey Log book requirement
K. Practice cost-effective health care and resource allocation that does not compromise quality of care in this module		

## 4. Unit contents (topic s/modules/rotation Course Matrix

### Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Cell membrane and its modification	A	A-C	A-G	A-K
Transport of material across the cell membrane	A	A-C	A-G	A-K
the ultrastructure of the nucleus and its component.	A	A-C	A-G	A-K
Cytoplasm	A	A-C	A-G	A-K
Cell inclusion	A	A-C	A-G	A-K
Cell activities	A	A-C	A-G	A-K
Cell cycle	A	A-C	A-G	A-K
Cell development	A	A-C	A-G	A-K
different Receptors and mechanism of hormone action	A	A-C	A-G	A-K

### 5. Methods of teaching/learning:

- 1-Laboratory training
- 2-literatures, Seminars & Presentations
- 3-oral communication & observation Senior staff experience
- 4-Observation & supervision Seminars, Lectures, Hand on workshops.

### 6. Methods of teaching/learning: for students with poor achievements

- 1-Extra Didactic (lectures, seminars, tutorial) according to their needs
- 2-Extra training according to their needs

## 7. Course assessment methods:

- i. Assessment tools: Practical examination  
Written oral examinations.  
Simulation Record review (report), Log book,  
Check list, Senior staff opinion
- ii. Time schedule: At the end of the first part.
- iii. Marks: 125

## 8. List of references

### i. Lectures notes

 Staff members print out of lectures.

### ii- Essential books

1- Bancroft's Theory and Practice of Histological

*Bancroft, and Stevens, (2008)*

2- Color Textbook of Histology. 3rd Edition Gartner  
and Hiate , 4<sup>th</sup> Edition, 2017

### iii. Recommended books

1- Junqueira's Basic Histology: Text and Atlas, NY:  
McGraw-Hill; Thirteenth Edition 2016

2- Bloom and Fawcett Concise Histology. D. W. Fawcett  
(Ronald P. Jensch, Contributing Editor). Chapman and Hall 1998

### iv. Periodicals, Web sites, ... etc

[www.ic.ac.uk/pgaf](http://www.ic.ac.uk/pgaf); email: [pgmedreg@ic.ac.uk](mailto:pgmedreg@ic.ac.uk)

## 9. Signatures

<b>Unit Coordinator:</b>	<b>Head of the Department:</b>
<b>Date: 1-2021</b>	<b>Date:</b>

## Course 2 : General Pathology

### 1. course data

- + **Unit Title: General Pathology**
- + **Unit code: HIS205**  
**Speciality Histology**
- + **Number of credit points: Didactic 3 ( 42.9%) practical 4 (57.1%)  
total: 7**
- + **Department (s) delivering the unit: Pathology Department in  
conjunction with Histology Department**
  
- + **Coordinator (s):**  
**-Course coordinator: Staff members of pathology &  
Histology Departments approved by departmental  
Councils and Faculty Councils.**
  
- + **Date last reviewed: 1-2021**
- + **General requirements (prerequisites) if any :**
  - MBBCh Degree from any Egyptian Faculties of Medicine
  - Equivalent Degree from medical schools abroad approved  
by the Council of Assiut University
  - Regulatory rules of postgraduate studies of Assiut faculty  
of medicine
- + **Requirements from the students to achieve unit ILOs are  
clarified in the joining log book.**



## 2-Course Aims

1- is to provide a basic education about the general pathology which is concerned about the basic abnormal alterations in the cells and tissues as a result of diseases.

2-**Mater skills of** Laboratory management: Trainees should take an interest in the management issues occurring in their departments and avail themselves of any opportunity to attend departmental meetings where such issues are discussed.

## 3. Unit intended learning outcomes (ILOs):

### A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Describe common conditions and diseases related to General Pathology</p> <p>1-Inflammation and Repair</p> <ul style="list-style-type: none"> <li>-General features of inflammation</li> <li>-Acute inflammation&amp; its types</li> <li>-Chronic inflammation</li> <li>-Systemic effects of inflammation</li> <li>-Types and mechanisms of repair</li> </ul> <p>2-Cellular adaptation, cell injury and cell death</p> <ul style="list-style-type: none"> <li>-Cell response to injury</li> <li>-Cellular adaptation of growth and differentiation</li> <li>-Causes and mechanism of cell injury</li> <li>-Apoptosis-Necrosis</li> <li>-Intracellularaccumulation</li> </ul> <p>3-Tumors (Neoplasia)</p> <ul style="list-style-type: none"> <li>-Definition-Nomenclature</li> <li>-Biology of tumor growth</li> <li>-Molecular basis of cancer</li> </ul>	<p>Didactic (lectures, seminars, tutorial)</p> <ul style="list-style-type: none"> <li>- Library and other learning resources and facilities at the university.</li> <li>- Journals.</li> </ul>	<p>Procedure</p> <ul style="list-style-type: none"> <li>- stains</li> <li>- Log book</li> <li>- Oral exam</li> <li>- Written Exam</li> </ul>

-Carcinogenesis -Clinical features of tumors		
B. Mention the following factual basics and principles essential to the course topics	Didactic	Log book
C. State update and evidence based Knowledge related to the course topics mentioned above.	Didactic	Log book
D.Memorize the facts and principles of the other relevant basic and clinically supportive sciences related to speciality including: microbiology, immunology, genetics	Didactic	Log book
E.Mention the basic ethical and medicolegal principles relevant to the speciality.		
F.Mention the basics of quality assurance to ensure good professional skills in his field.		
G.Mention the ethical and scientific principles of medical research		

## **B. Intellectual outcomes**

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
<p>A- Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases appropriate to Pathology in clinical reasoning, diagnosis and management of various diseases and tumors as ability to generate a differential diagnosis, explain clinical-pathologic correlations, and evaluate scientific and clinical laboratory data.</p>	<p>Senior staff experience  Departmental teaching sessions:</p>	<p>logbook</p>
<p>B-Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to course topics</p>		
<p>C-Design and present audits, cases, seminars in common problems related to pathology</p>	<p>Seminars Case presentation</p>	<p>logbook</p>
<p>D. Formulate management plans and alternative decisions in different situations in the field of the Pathology.</p>	<p>Seminars Case presentation</p>	<p>logbook</p>

### C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
<p><b>A. Perform the following basic lab skills essential to the course:</b></p> <ul style="list-style-type: none"> <li>- possessing Sufficient manual dexterity to perform dissection safely and accurately, without damage to tissues.</li> <li>- Principles of specimen dissection, macroscopic description and block selection in neoplastic and nonneoplastic disease.</li> <li>- Special techniques.</li> <li>-Recognizing histological features of histochemical and immunohisto-chemical stains in normal and diseased tissues</li> <li>- Preparation and staining techniques for common specimen types</li> <li>- Correct specimen orientation.</li> <li>- Open fresh specimen.</li> <li>- Obtaining fresh tissue for touch preparation, freezing, electron microscopy etc.</li> <li>- Inking of excision margins.</li> </ul>	<ul style="list-style-type: none"> <li>- supervision</li> <li>Written &amp; oral communication.</li> <li>Discussions in seminars</li> <li>Scientific meetings participate in seminars</li> <li>Routine work: The most important learning experience will be day-to-day work. Trainees will be closely supervised during training. This close supervision allows for frequent short episodes of teaching.</li> </ul>	<ul style="list-style-type: none"> <li>Log book</li> <li>Practical and oral examination</li> </ul>

**D. General Skills**  
**Practice-Based Learning and Improvement**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook).	Dissection ,manual processing and staining Observation and supervision Written & oral communications	-Written essays, dissertations, oral presentation in seminars, team working skills through collaborative projects, students representative work, social and cultural activities Log book requirement
B. Locate, appraise, and assimilate evidence from scientific studies related to one of this module's staining techniques		
C. Use information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars		
D. Facilitate the learning of students the different autoradiographic techniques.		

**Interpersonal and Communication Skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Create and sustain a ethically sound relationship with students and others as a member of research work team in the processing ,staining and imaging of the slides.	Observation & supervision Didactic	team working skills through collaborative projects, students representative work, Log book requirement
F. perform the following oral communications: -About the result of the experimental work		
G. fill the following reports: -Pre-experiment sheet. -Final comment on the results of the experiment		

### Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
H. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	Objective structured practical examination 2.student survey
I. Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information		3-social and cultural activities -Log book requirement

### Systems-Based Practice

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
J. Work effectively in such health care delivery settings and systems	Observation & supervision Didactic	.student survey Log book requirement
K. Practice cost-effective health care and resource allocation that does not compromise quality of care		
L. Assist students and technician in dealing with system complexities.		

#### 4. Unit contents (topic s/modules/rotation Course Matrix

##### Time Schedule: First Part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Inflammation and Repair	A-G	A-D	A	A-P
Cellular adaptation, cell injury and cell death	A-G	A-D	A	A-P
Tumors (Neoplasia)	A-G	A-D	A	A-P

#### 5. Unit Methods of teaching/learning:

- 1-Laboratory training
- 2- Literatures, Seminars & Presentations
- 3- oral communication & observation Senior staff experience
- 4-Observation & supervision Seminars, Lectures, Hand on workshops

#### 6. Unit Methods of teaching/learning: for students with poor achievements

1. Extra didactic (lectures, seminars, tutorial)
2. Extra laboratory work

#### 7. Unit assessment methods:

- i. **Assessment tools:** Practical examination Written and oral examination . Simulation Record review (report), Log book, Chick list, Senior staff opinion
- ii. **Time schedule:** At the end of the first part
- iii. **Marks:** 150

## 8. List of references

**i. Lectures notes**

**ii. Essential books**

➤ KUMAR, V., COTRAN, R.S., and ROBBINS, S.L. Robbin Basic Pathology. 7th ed. Saunders Publisher, 2005.

**iii. Recommended books**

➤ Rosai and Ackerman's Surgical Pathology Juan Rosai, Mosby 2004

➤ Sternberg's Diagnostic surgical Pathology 4th edition, Lippincott Williams and Wilkins by LA Erickson - 2005

**iv. Periodicals, Web sites, ... etc**

➤ Human pathology

➤ Histopathology

➤ American Journal of surgical pathology

**Web sites**

➤ <http://www.pathmax.com/>

➤ <http://www-medlib.med.utah.edu/WebPath/LABS/LABMENU.html#2>

➤ <http://www.med.uiuc.edu/PathAtlasf/titlePage.html>

➤ <http://www.medscape.com/pathologyhome>

➤ <http://pathology2.jhu.edu/cytopath/masterclass/Homepage.htm>

➤ <http://www.gotpath.com/>

## 9. Signatures

<b>Course Coordinator:</b>	<b>Head of the Department:</b>
<b>Date:</b>	<b>Date:</b>



## Course 3 unit 1(Cytology2)

- **Name of department: Histology Department**
- **Faculty of medicine**
- **Assiut University**
- **2020-2021**

### 1. Unit data

- + **Unit Title: Cytology 2**
- + **Unit code: HIS202B**
- + **Speciality Histology**
- + **Number of credit points: Didactic 4 (3%) practical 16 (13%) total: 20**
  
- + **Department (s) delivering the unit: Histology and cell biology .Faculty of Medicine- Assiut University**
  
- + **Coordinator (s):**
  - Unit coordinator: Prof. Dr. Sohair Abdelbaky Mohamed Eltony**
  - Dr.Nashwa Ahmed Mohamed**
- + **Date last reviewed: 1-2021**
- + **General requirements (prerequisites) if any :**

MBBCh Degree from any Egyptian Faculties of Medicine  
Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education.

Regulatory rules of postgraduate studies of Assiut faculty of medicine-
- + **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

## 2. Unit Aims

1 -Provide students with comprehensive knowledge of the morphological changes found in cells in health and any deviation from normal.

2- Attract graduates in medicine, biomedical sciences and biological sciences who want to pursue an advanced academic course in the field of cytology. A principal goal of the course is to make students aware of recent advances in molecular and cellular biology and to train students in basic research methodology.

3-Introduce students to modern investigative techniques for studying the cell which include advanced microscopy, immunocytochemistry, and molecular biology as well as the use of automated equipment for cellular imaging and morphometric studies.

### 3. Unit intended learning outcomes (ILOs):

#### A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A. Demonstrate Principles of <b>Cell biology</b></p> <ul style="list-style-type: none"> <li>-Cell membrane and its modifications</li> <li>-Transport of material across the cell membrane</li> </ul> <p><b>-Physiologic Principles of the ultrastructure of the nucleus and its component.</b></p> <ul style="list-style-type: none"> <li>-types of chromatin and sex chromatin</li> <li>-Structure of Chromosomes ,methods of studying of the the karyotype . Meiosis ,also spot light on the clinical correlations as: abnormal chromosome number that might occur in meiosis (aneuploidy) . Down syndrome, for example, (trisomy 21)</li> </ul> <p><b>- Cytoplasm</b> cytoplasmic matrix and cytoskeleton</p> <p>Cell organelles with spotlight on the CLINICAL CORRELATIONS as: lysosomal storage disorder, glycogen storage disorders and mitochondrial diseases.</p> <p><b>Cell inclusion</b>-examples of associated pathologies</p> <p><b>Cell activities</b></p>	<p>Didactic (lectures, seminars, tutorial)</p> <ul style="list-style-type: none"> <li>- Induction programme for orientation, introduction to library and information technology, and to the Histology Department</li> <li>- MSc Student Handbook, which includes descriptions of each module.</li> </ul> <p>A large community of postgraduate research students and postdoctoral research workers who work on Cytology-based projects.</p> <ul style="list-style-type: none"> <li>- Library and other learning resources and facilities at the university.</li> <li>- Dedicated computing facilities with 24 h</li> </ul>	<p>Procedure/ - stains - Log book - Oral exam - Written exam</p>

<ul style="list-style-type: none"> <li>* Cell division</li> <li>* Cell locomotion</li> <li>* Endocytosis</li> <li>* Exocytosis</li> </ul> <p><b>Cell cycle with spotlight on mitosis and controlling it</b></p> <p><b>Cell development factors</b></p> <p><b>Receptors and mechanism of hormone action</b></p>	<p>access.</p> <ul style="list-style-type: none"> <li>- An MSc staff - student committee, which meets three times per year.</li> <li>- A large teacher base including many 'outside' speakers. Access to postgraduate 'Research in Progress' and Journal clubs that occur on the college day.</li> </ul>	
<p>B. State update a Knowledge related to the unit:</p> <ul style="list-style-type: none"> <li>- stem cells:-sources</li> <li>-stem cell therapy</li> </ul>		

### **B. Intellectual outcomes**

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
<p>A. Apply the facts of basic sciences which are appropriate to speciality in clinical reasoning, diagnosis and management of certain diseases for example: the CLINICAL CORRELATION between Cell organelles and: lysosomal storage disorder, glycogen storage disorders and mitochondrial diseases.</p> <p>B. Apply clinically supportive sciences which are appropriate to the following areas:eg. Types of chromatin and sex chromatin,structure of</p>	<p>Didactic (lectures, seminars, tutorial)</p>	<ul style="list-style-type: none"> <li>- Log book</li> <li>-Oral exam</li> <li>- Written exam</li> </ul>

Chromosomes ,methods of studying of the karyotype gives information on the aetiology of some chromosomal diseases. C. Demonstrate an investigatory and analytic thinking (problem solving) approach to clinical situations as diagnosis of any tissue specimen		
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### **C. Practical skills**

ILOs	Methods of teaching/ learning	Methods of Evaluation
<p>A. Perform the basic lab skills essential to the course:</p> <p>B. Plan and execute safely a series of experiments</p> <p>C. Use laboratory-based methods to generate data</p> <p>D. Analyse experimental and diagnostic results and critically evaluate their strength and validity</p> <p>E. Prepare and present technical reports</p> <p>F. Use the scientific literature and databases effectively</p> <p>G. Interpret of the finding after some Cytochemical methods.-</p> <p>- The immunohistochemical results after using specific antibodies as well as ultrastructural deviation from normal that might reflect the underlying pathological condition.</p>	<p>Lecture</p> <p>- seminar</p> <p>-Direct observation of the practical work as :</p> <p>Diferentiation between different types of tissues stained by different tyes of histochemical, Immunohistochemical staining techniques as well as different Autoradiographic methods and also identification and differentiation between different tissues when examined by TEM as well as SEM</p>	<p>- log book</p> <p>- Objective structure</p> <p>-Check list on the different item that were written in the comment on different stains and / or tissues</p> <p>MCQ exam</p> <p>Final Exam</p>

**D. General Skills**  
**Practice-Based Learning and Improvement**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook).	Observation & supervision	Team working skills through collaborative projects,
B. Locate, appraise, and assimilate evidence from scientific studies related to one of this module's staining techniques and its reflection on different types of tissues	Didactic	students representative work, Log book requirement
C. Use information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars		
D. Facilitate the learning of students the different Shapes and/colours of the same tissue after using different staining techniques		

## Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
<p>E. Create and sustain an ethically sound relationship with students and others as a member of Research work team in the imaging of the slides and spot diagnosis of different types of tissues after staining by different staining methods</p>	<p>Observation &amp; supervision Didactic</p>	<p>Team working skills through collaborative projects, students representative work, Log book requirement</p>
<p>F. perform the following oral communications: -About the result of the experimental work</p>		
<p>G. fill the following reports: -Pre-experiment sheet. -Final comment on the results of the experiment</p>		
<p>H. Facilitate the learning of students the different Shapes and/colours of the same tissue after using different staining techniques</p>		

## Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
I. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	Objective structured practical examination 2.student survey 3-social and cultural activities Log book requirement
J. Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information		

## Systems-Based Practice

<b>ILOs</b>	<b>Methods of teaching/ learning</b>	<b>Methods of Evaluation</b>
K. Avoid abuse of the system as microscopes, slides and computers	Observation & supervision Didactic	.student survey -Log book requirement
L. Work effectively in such research workers team and staff members systems related to the module		



#### 4. Unit contents (topic s/modules/rotation Course Matrix

#### Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Cell membrane and its modifications Transport of material across the cell membrane	A	A-C	A-G	A-L
Ultrastructure of the nucleus and its component.	A	A-C	A-G	A-L
Cytoplasm	A	A-C	A-G	A-L
Cell activities	A	A-C	A-G	A-L
Cell cycle	A	A-C	A-G	A-L
Cell Development	A	A-C	A-G	A-L
Receptors and mechanism of hormone action	A	A-C	A-G	A-L
stem cells.	B	A-C	A-G	A-L

#### 5. Methods of teaching/learning:

1. -Laboratory training
2. literatures, Seminars & Presentations
3. -oral communication & observation Senior staff experience
4. -Observation & supervision Seminars, Lectures, Hand on workshops.

## 6. Unit Methods of teaching/learning: for students with poor achievements

1-Extra Didactic (lectures, seminars, tutorial) according to their needs

2-Extra training according to their needs

## 7. Unit assessment methods:

i. **Assessment tools:** Practical examination

Written oral examinations.

Senior staff experience , checklist

Simulation Record review (report), Log book,

ii. Time schedule: At the end of second part

iii. Marks: 100

## 8. List of references

### i- Essential books

1- Bancroft's Theory and Practice of Histological  
*Bancroft, and Stevens, (2008)*

2- Color Textbook of Histology. 3rd Edition Gartner and –  
Hiatte , 4<sup>th</sup> Edition, 2017

### ii. Recommended books

1- Junqueira's Basic Histology: Text and Atlas, NY:  
McGraw-Hill; Thirteenth Edition 2016

2- Bloom and Fawcett Concise Histology. D. W. Fawcett  
(Ronald P. Jensch, Contributing Editor). Chapman and Hall 1998

### iii. Periodicals, Web sites, ... etc

www.ic.ac.uk/pgaf; email: [pgmedreg@ic.ac.uk](mailto:pgmedreg@ic.ac.uk)

## 9. Signatures

<b>Unit Coordinator:</b>	<b>Head of the Department:</b>
<b>Date:</b>	<b>Date:</b>

## Course 3 unit 2 (General Histology)

### 1. Unit data

- ✚ **Unit Title** :General Histology
- ✚ **Unit code:** HIS202B
- ✚ **Speciality:** Histology
- ✚ **Number of credit points:** Didactic 6 (5%) practical: 24(20%).total:30
- ✚ **Department (s) delivering the unit:** Histology and cell biology  
.Faculty of Medicine- Assiut University
- ✚ **Coordinator (s):**
  - ✚ **Unit coordinators:** Prof. Dr. Amel Taha Abu-elgheet  
Prof. Dr. Dalia Abdou El-Gamal
- ✚ **Date last reviewed:** 1-2021
- ✚ **General requirements (prerequisites) if any :**
  - a. - MBBCh Degree from any Egyptian Faculties of Medicine
  - b. Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
  - c. Regulatory rules of postgraduate studies of Assiut faculty of medicine
- ✚ **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

## 2. Unit Aims

1-To enable candidates to get sufficient Knowledge of the different types of tissues, structure and function of the body and of the molecular and cellular mechanisms.

2-To enable candidates to keep with international standards of histology and cell biology searcher by teaching high level of practical skills, in addition to update medical knowledge as well as stress upon applied histology.

3- Enable candidates to differentiate between different types of tissues after examination by light as well as electron microscope.

### 3. Unit intended learning outcomes (ILOs):

#### A-Knowledge and understanding

<i>ILOs</i>	<i>Methods of teaching/ Learning</i>	<i>Methods of Evaluation</i>
<p>A- Demonstrate Principles of <b>Epithelial tissue</b></p> <ul style="list-style-type: none"> <li>- Lining and covering epith</li> <li>- Glandular epithelium</li> <li>- Neuroepithelium</li> </ul> <p><b>Connective tissue</b></p> <ul style="list-style-type: none"> <li>- Loose connective tissue</li> <li>- Cells and fibers</li> <li>- Dense connective tissue</li> <li>- Tendons and fibrous ligaments</li> <li>- Supporting connective tissue               <ul style="list-style-type: none"> <li>* Cartilage</li> <li>* Bone - joints – synovial membranes ( - -Histology-development – histophysiology – repair)</li> </ul> </li> <li>-Histophysiology of connective tissue</li> </ul> <p><b>Bone marrow and blood cell formation(Haemopoiesis)</b></p> <p>Blood elements ( R.B.Cs, Leucocytes and platelets)</p> <ul style="list-style-type: none"> <li>Light and electron microscopic structure</li> <li>Relationship between structure and function</li> </ul> <p><b>Muscular tissue</b></p> <ul style="list-style-type: none"> <li>• Light and electron microscopic structure</li> <li>• Histophysiology and</li> </ul>	<p>Didactic (lectures, seminars, tutorial)</p> <ul style="list-style-type: none"> <li>- journal club,</li> <li>- All students are allocated personal tutors whose role is to assist them with personal problems and to advise on pastoral and academic issues.</li> <li>- Students conduct their research projects at an external site so, in addition to workplace supervisor, are assigned a member of the Histology or Cytology academic staff to oversee progress and advise on the project dissertation. Where practical, students will be visited by College staff during their project.</li> <li>- Student email and open personal access to tutorial staff including the Course Director.</li> <li>- Access to student</li> </ul>	<p>Spot diagnosis of different types of tissues in the practical exam</p> <ul style="list-style-type: none"> <li>- Log book</li> <li>- Oral exam</li> <li>- Written Exam</li> </ul> <p>The Course evaluation prepared by the Course Director and considered by the Course Committee and the Assiut College, Departmental Teaching Committee. MSc Staff – Student Committee, held each term, with report to Departmental Teaching</p>

<p>mechanism of action</p> <ul style="list-style-type: none"> <li>• Development and repair of striated muscles <ul style="list-style-type: none"> <li>skeletal muscle</li> <li>cardiac muscles and heart</li> </ul> </li> </ul> <p>Smooth muscles</p> <p>Neuro- muscular junction</p> <p><b>The nervous tissue</b></p> <ul style="list-style-type: none"> <li>* The neurons synapses of neurons</li> <li>* peripheral nerves</li> </ul> <p>Sheaths and their formation and function</p> <ul style="list-style-type: none"> <li>* Degeneration <ul style="list-style-type: none"> <li>-Traumatic degeneration.</li> <li>- Retrograde degeneration</li> <li>-Wallerian degeneration</li> </ul> </li> <li>*Regeneration of nerve fibers</li> </ul> <p>Neuroglia</p> <p>Types of neuroglia</p> <p>Functions of neuroglia</p> <p>Ganglia</p> <p>Nerve terminations</p> <p>Efferent termination Somatic efferent terminations</p> <p>Visceral efferent terminations</p> <p>Afferent termination</p> <ul style="list-style-type: none"> <li>Exteroceptors</li> <li>Proprioceptors</li> </ul> <p>Enteroceptors</p>	<p>counsellors on the South Kensington site.</p> <ul style="list-style-type: none"> <li>- Access to Teaching and Learning Support Services, which provide assistance and guidance, e.g. on careers.</li> </ul>	<p>Committee and the Divisional Postgraduate Teaching Committee</p>
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## B. Intellectual outcomes

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
<p>A. Apply the facts of basic sciences which are appropriate to Histology in clinical reasoning, diagnosis and management of certain diseases for example: Relationship between structure and function</p> <p>B. Apply clinically supportive sciences which are appropriate to the following areas: eg. the different conditions of degeneration as: - Traumatic degeneration. Retrograde degeneration -Wallerian degeneration and also regeneration of nerve fibers</p> <p>C. Demonstrate an investigatory and analytic thinking (problem solving) approach to clinical situations as differential diagnosis of different tissues</p>	<p>Didactic (lectures, seminars, tutorial</p>	<p>Written and oral examination</p> <p>-Log book</p>

### C. Practical skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform the basic lab skills essential to the unit:	-Lecture - seminar - Differentiation between different types of tissues by light microscope after staining by different types of histochemical, Immunohistochemical stains. -Identification and Differentiation of different tissues after examination by TEM and SEM	log book - Objective structure -Check list on the different item that were written in the comment on different stains and / or tissues
B. Use light as well as electron microscope to differentiate between different types of tissues		
C. Interpretation of the finding after some - Cytochemical methods. - The immunohistochemical results after using specific antibodies as well as ultrastructural deviation from normal that might reflect the underlying pathological condition		
D. Counsel and educate students, technicians and junior staff, in the lab about conditions related to Histology including handling of samples, devices, safety and maintenance of laboratory equipments.		



**D. General Skills**  
**Practice-Based Learning and Improvement**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook).	Different slides and photoes Observation - Written & oral communications -Practical experimental and diagnostic skills are developed through laboratory and project work	Written essays, dissertations,oral presentation in seminars, team working skills through collaborative projects, students representative work, social and cultural activities log book requirement
B. Locate, appraise, and assimilate evidence from scientific studies related to one of this module's staining techniques and its reflection on different types of tissues		
C. Use information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars		
D. Facilitate the learning of students the different Shapes and/colours of the same tissue after using different staining techniques		

## Interpersonal and Communication Skills

ILOs	Methods of teaching/ learning	Methods of Evaluation
E. Create and sustain an ethically sound relationship with students and others as a member of Research work team in the imaging of the slides and spot diagnosis of different types of tissues after staining by different staining methods	Observation & supervision Didactic	team working skills through collaborative projects, students representative work, log book requirement
F. perform the following oral communications: -About the result of the experimental work		
G. fill the following reports: -Pre-experiment sheet. -Final comment on the results of the experiment		

## Professionalism

<i>ILOs</i>	<i>Methods of teaching/ learning</i>	<i>Methods of Evaluation</i>
H. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	Objective structured practical examination 2.student survey
I. Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information		3-social and cultural activities - log book requirement

## Systems-Based Practice

ILOs	Methods of teaching/ learning	Methods of Evaluation
J. Work effectively in such health care delivery settings and systems related to the module	Observation & supervision Didactic	.student survey -- log book requirement
K. Practice cost-effective health care and resource allocation that does not compromise quality of care in this module		
L. Assist students and technician in dealing with system complexities.		

### 4. Unit contents (topic s/modules/rotation Course Matrix

#### Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
<b>Epithelial tissue</b>	A	A-C	A-D	A-L
<b>Blood and Bone Marrow</b>	A	A-C	A-D	A-L
<b>Connective Tissue</b>	A	A-C	A-D	A-L
<b>Muscular tissue</b>	A	A-C	A-D	A-L
<b>Nervous tissue</b>	A	A-C	A-D	A-L

### 5. Unit Methods of teaching/learning:

- 1-Laboratory training
- 2-literatures, Seminars & Presentations
- 3-oral communication & observation Senior staff experience
- 4-Observation & supervision Seminars, Lectures, Hand on workshops.

## **6. Unit Methods of teaching/learning: for students with poor achievements**

- 1-Extra Didactic (lectures, seminars, tutorial) according to their needs
- 2-Extra training according to their needs

## **7. Unit assessment methods:**

- i. Assessment tools: ...: Practical examination  
Written oral examinations.  
Simulation Record review (report), Log book,  
Senior staff opinion  
Check list
- ii. Time schedule: At the end of second part.
- iii. Marks: 150

## **8. List of references**

- i- Essential books
  - 1- Bancroft's Theory and Practice of Histological Bancroft, and Stevens, (2008)
  - 2- Color Textbook of Histology. 3rd Edition Gartner and – Hiatte , 4th Edition, 2017
- ii. Recommended books
  - 1- Junqueira's Basic Histology: Text and Atlas, NY: McGraw-Hill; Thirteenth Edition, 2016
  - 2- Bloom and Fawcett Concise Histology. D. W. Fawcett (Ronald P. Jensch, Contributing Editor). Chapman and Hall 1998
- iii. Periodicals, Web sites, ... etc  
[www.ic.ac.uk/pgaf](http://www.ic.ac.uk/pgaf); email: [pgmedreg@ic.ac.uk](mailto:pgmedreg@ic.ac.uk)

## **9. Signatures**

<b>Unit Coordinator:</b>	<b>Head of the Department:</b>
<b>Date:</b>	<b>Date:</b>

## Course 3: unit 3 Special Histology

- **Name of department: Histology Department**
  - **Faculty of medicine**
  - **Assiut University**
- 2020-2021/2021-2022**

### 1. Course data

- + **Unit Title: Special Histology**
- + **Unit code: HIS202B**
- + **Speciality Histology**
- + **Number of CP Didactic 10 (20%) practical 40 (80%) total:50 CP**
- + **Department (s) delivering the unit: Histology and cell biology**
- + **Faculty of Medicine- Assiut University**
- + **Coordinator (s):**
  - **Unit coordinators: Prof. Dr. Safaa A.Abdel-Maksoud**  
**Prof. Manal M. Shehata**
- + **Date last reviewed: 1-2021**
- + **General requirements (prerequisites) if any :**
  - MBBCh Degree from any Egyptian Faculties of Medicine
  - Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
  - Regulatory rules of postgraduate studies of Assiut faculty of medicine
- + **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

## 2. Unit Aims

1-To enable candidates to get sufficient Knowledge of the structure and function of the body and its major organ systems and of the different types of tissues as well as the molecular and cellular mechanisms.

2-To enable candidates to keep with international standards of histology and cell biology searcher by teaching high level of practical skills, in addition to update medical knowledge as well as stress upon applied histology.

3- Enable candidates to differentiate between different types of tissues and organs after examination by light as well as electron microscope

## 3. Unit intended learning outcomes (ILOs):

ILOs	Methods of teaching/ Learning	Methods of Evaluation
<p>A. Demonstrate Principles of <u>Vascular system</u></p> <p style="padding-left: 20px;">* The general plane of the vascular system</p> <p>(1) The structure of Arteries</p> <ul style="list-style-type: none"> <li>- Elastic arteries</li> <li>- Muscular or distributing arteries</li> <li>- Transitional and specialized arteries</li> <li>- Arterioles</li> <li>- Arteriovenous anastomoses</li> </ul> <p>(2) Veins</p> <ul style="list-style-type: none"> <li>- Small veins and venules</li> <li>- Veins of medium size</li> <li>- Large veins</li> </ul>	<p>Didactic (lectures, seminars, tutorial)</p> <ul style="list-style-type: none"> <li>- journal club,</li> <li>- All students are allocated personal tutors whose role is to assist them with personal problems and to advise on pastoral and academic issues.</li> <li>- Students conduct their research</li> </ul>	<ul style="list-style-type: none"> <li>- Spot diagnosis of different types of tissues in the practical exam</li> <li>Log book</li> <li>- Oral exam</li> <li>- Written exam</li> <li>-TheCourse evaluation prepared by</li> </ul>

<p>(3) Capillaries  (4) Sinusoids  <u>Lymphatic system</u>  -Lymphatic vessels  -The immune system  Cytology and histophysiology of the cells of the immune system  - Lymphocytes  - Plasma cells  - Macrophages  -Lymphoid tissue  * Diffuse lymphoid tissue  * Lymphoid Nodules  * Lymphatic organs  Thymus – spleen – lymph node  <u>Skin :</u>  * Types of skin  * Skin Appendages  <u>Endocrine glands :</u>  * General characteristic features of the endocrine gland  * Hypophysis  * Thyroid and parathyroid glands  * Adrenal gland  * pineal gland  * APUD system  <u>Digestive system :</u>  * Oral cavity and associated glands  - Mucous membrane  - Tongue – lip  - Salivary glands  * The general structure of the digestive tract  - the structure, function and modification  * Oesophagus  * Stomach (Cardiac, fundic and pyloric regions)  * small intestine</p>	<p>projects at an external site so, in addition to workplace supervisor, are assigned a member of the Histology or Cytology academic staff to oversee progress and advise on the project dissertation. Where practical, students will be visited by College staff during their project.  - Student email and open personal access to tutorial staff including the Course Director.  - Access to student counsellors on the South Kensington site.  - Access to Teaching and Learning Support Services, which provide assistance and guidance, e.g. on careers.</p>	<p>the Course Director and considered by the Course Committee and the Assiut College, Departmental Teaching Committee. MSc Staff – Student Committee, held each term, with report to Departmental Teaching Committee and the Divisional Postgraduate Teaching Committee</p>
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<p>* large intestine</p> <p>* Structure and histophysiology of the liver</p> <ul style="list-style-type: none"> <li>- gall bladder</li> <li>- pancreas</li> </ul> <p><u>Respiratory system:</u></p> <ul style="list-style-type: none"> <li>- The olfactory epithelium</li> </ul> <p style="padding-left: 20px;">Histophysiology of the nose- Para nasal sinuses</p> <ul style="list-style-type: none"> <li>- Histophysiology of the conducting portion of the respiratory tract ( Trachea, bronchi – bronchioles)</li> <li>- Histology and histophysiology of the respiratory portion of the lung ( Respiratory bronchioes, Alveolar ducts, alveoli)</li> </ul> <p><u>The urinary system :</u></p> <p style="padding-left: 20px;">The histology structure of:</p> <ul style="list-style-type: none"> <li>- Uriniferous tubules</li> <li>- Structure and function of the nephron</li> <li>- Renal intersititium</li> </ul> <ul style="list-style-type: none"> <li>- Juxtaglomerular complex</li> </ul> <p style="padding-left: 20px;">Histophysiology of the kidneys</p> <p style="padding-left: 20px;">Renal pelvis and ureter</p> <p style="padding-left: 20px;">Urinary bladder</p> <p style="padding-left: 20px;">Male and female urethra</p> <p><u>Male reproductive system :</u></p> <p style="padding-left: 20px;">Seminiferous tubules of the testis</p> <p>Boundary tissue</p> <p>Seminiferous epithelium</p> <p>Spermatogenesis</p> <p>Spermiogenesis</p> <p>The structural, functional adaptation of the sperms</p> <p>The cycle of the seminiferous epithelium</p> <p>Histophysiology of the testis</p> <p>Excretory ducts of the testis</p> <p>Accessory glands of the male reproductive</p>		
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<p>tract</p> <p>Seminal vesicles</p> <p>Prostate gland</p> <p>Bulbourethral gland</p> <p>Histophysiology of ducts and accessory glands</p> <p>Fertilization</p> <p>The penis and mechanism of erection</p> <p>H. demonstrate Principles/ details</p> <p><u>Female Reproductive System :</u></p> <p style="padding-left: 40px;">* Ovary: Histology and histophysiology</p> <p style="padding-left: 40px;">* Ovulation</p> <p style="padding-left: 40px;">Fertilization</p> <p style="padding-left: 40px;">Endocrine control of ovarian function</p> <p>Vestigial organs associated with the ovary</p> <p>The oviduct or fallopian tube</p> <p>External genitala</p> <p>Uterus</p> <p>Histophysiology of the myometrium</p> <p>Cyclic changes in the endometrium</p> <p>Proliferative phase ( follicular phase)</p> <p>Secretory phase ( luteal phase)</p> <p>Menstural phase</p> <p>Histology of the placenta</p> <p>Placental circulation</p> <p>Histology and histophysiology of the mammary gland</p> <p><u>Histology and histophysiology of the eye.</u></p> <p style="padding-left: 40px;">* Cornea</p> <p style="padding-left: 40px;">* Limbus</p> <p style="padding-left: 80px;">Sclera – ciliary body</p> <p style="padding-left: 40px;">* iris – choroid    * Retina and photoreceptors</p> <p style="padding-left: 40px;">Refractive media of the eye</p> <p style="padding-left: 40px;">* Eyelids and accessory organs of the eye</p>		
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* Lacrimal gland <u>Histology and histophysiology of the ear :</u> External ear Middle ear And inner ear <u>Histological structure of Brain</u> Cerebrum Cerebellum Brain stem * Spinal cord		
B. Mention the factual basics and principles essential to the course.		
C. Mention the basic ethical and medicolegal principles relevant to the course		
D. Mention the basics of quality assurance to ensure good professional skills in his field.		
E. Mention the ethical and scientific principles of medical research		
F. State the impact of common problems related to the field of Histology on the society and how good practice can improve these problems		

### **B. Intellectual outcomes**

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Correlates the facts of relevant basic and clinically supportive sciences with conditions and diseases of relevance to Histology.	Didactic (lectures, seminars, tutorial	Written and oral examination -Log book
B. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to Histology.		

C. Design and present audits, cases, seminars in common problems related to Histology.		
D-Formulate management plans and alternative decisions in different situations in the field of the Histology.		

### **C. Practical skills**

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Perform basic lab skills essential to the course:		
B. Examination by LM and EM, identification the following organs and systems: <u>Vascular system</u> (1) The Arteries - Elastic arteries - Muscular or distributing arteries - Transitional and specialized arteries (2) Veins - large veins - Veins of medium size (2) Lymphoid tissue * Mucosa associated lymphoid Nodules * Lymphatic organs Thymus – spleen – lymph node- tonsils 3) Endocrine glands : * Hypophysis * Thyroid and parathyroid glands * Adrenal gland * pineal gland (4) Skin : * Types of skin(Thin&Thick) * Skin Appendages (5) Diestive system :	- seminar Differentiation between different types of tissues by light microscope after staining by different types of histochemical, Immunohistochemical stains. -Identification and Differentiation of different tissues after examination by TEM and SEM	- log book - Objective structure -Check list on the different item that were written in the comment on different stains and / or tissues

<ul style="list-style-type: none"> <li>- Tongue – lip</li> <li>- Salivary glands</li> <li>* Oesophagus</li> <li>* Stomach (Cardiac, fundic and pyloric regions)</li> <li>* small intestine</li> <li>* large intestine</li> <li>* Structure and histophysiology of the liver</li> <li>- gall bladder</li> <li>- pancreas</li> <li>(6)Respiratory system: <ul style="list-style-type: none"> <li>- The olfactory epithelium</li> <li>  Histology of the nose</li> <li>  Para nasal sinuses</li> </ul> </li> <li>- Histology of the conducting portion of the respiratory tract <ul style="list-style-type: none"> <li>( Trachea, bronchi – bronchioles)</li> </ul> </li> <li>- Histology of the respiratory portion of the lung ( Respiratory bronchioles, Alveolar ducts, alveoli)</li> <li>(7)The urinary system : <ul style="list-style-type: none"> <li>- Uriniferous tubules</li> <li>- Structure and function of the nephron</li> <li>- Renal intersitium</li> <li>- Juxtaglomerular complex</li> <li>  Renal pelvis and ureter</li> <li>  Urinary bladder</li> </ul> </li> <li>(8)Male reproductive system : <ul style="list-style-type: none"> <li>Seminiferous tubules of the testis</li> <li>Seminiferous epithelium</li> <li>The cycle of the seminiferous epithelium</li> <li>Accessory glands of the male reproductive tract : Seminal vesicles</li> <li>  Prostate gland</li> <li>  The penis</li> </ul> </li> </ul>		
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<p>(9)Female Reproductive System :</p> <p>Ovary</p> <p>The oviduct or fallopian tube</p> <p>Uterus</p> <p>External genitala</p> <p>placenta</p> <p>mammary gland</p> <p>(10.)Histology of the eye.</p> <ul style="list-style-type: none"> <li>* Cornea</li> <li>* Limbus</li> <li>Sclera – ciliary body</li> <li>* iris – choroid    * Retina and photoreceptors</li> <li>* Eyelids and accessory organs of the eye</li> <li>* Lacrimal gland</li> </ul> <p>(1.) Histology of the ear :</p> <p>External ear</p> <p>Middle ear And inner ear</p> <p>12. Histological structure of</p> <ul style="list-style-type: none"> <li>- Brain    - Cerebrum</li> <li>- Cerebullum    - Brain stem</li> <li>- Spinal cord</li> </ul>		
<p>C. Interpret of the finding after some Cytochemical methods.</p> <ul style="list-style-type: none"> <li>- interpretation of the immunohistochemical results after using specific antibodies as well as ultrastructural deviation from normal that might reflect the underlying pathological condition</li> </ul>		
<p>D. Write and evaluate the following reports :</p> <p>Reports on various histological specimens</p>		
<p>E. Develop plans for performing experiments experiments in the following situations:</p> <ul style="list-style-type: none"> <li>- Certain searches on experimental animals aiming at solving certain medical problems</li> </ul>		

<p>as eg: Diabetes mellitus, anemia etc...</p> <p>–Trial of solving certain medical problems by using new plants and/ or certain chemical compounds.</p> <ul style="list-style-type: none"> <li>- Recent markers and immunohistochemical techniques</li> <li>- How to photograph a gross specimen and a microscopic slide</li> </ul>		
<p>F. Counsel and educate students, technicians and junior staff, in the lab about conditions related to Histology ; including -Preparation of the specimens for immunohistochemical procedures and making immunohistochemical staining .</p> <ul style="list-style-type: none"> <li>- Preparation of the specimens for electron microscopic examination ,making semithin sections and ultrathin sections.</li> <li>- Identify normal structures and possible abnormalities present grossly and microscopically</li> <li>- Use a microscope safely and operate it effectively</li> </ul>		
<p>G. Use information technology to support decisions in common situations related to Histology.</p>		
<p>H. Share in providing health care services aimed solving health problems and better understanding of the normal structure and function.</p>		

**D. General Skills**  
**Practice-Based Learning and Improvement**

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook).	Different slides and photoes Observation	Written essays, -
B. Locate, appraise, and assimilate evidence from scientific studies :staining techniques and its reflection on different types of tissues	- Written & oral communications -Practical experimental	dissertations,oral presentation in seminars, team working skills through collaborative projects,
C. participate in one audit or survey related to the course	and diagnostic skills are developed through laboratory and project work	students representative work, social and cultural activities - log book requirement
D. Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars		
E. Facilitate the learning of students the different Shapes and/colours of the same tissue after using different staining techniques		

**Interpersonal and Communication Skills**

ILOs	Methods of teaching/ Learning	Methods of Evaluation
F. Create and sustain a ethically sound relationship with students and others as a member of Research work team in the imaging of the slides and spot diagnosis of different types of tissues after staining by different staining methods	Observation & supervision Didactic	team working skills through collaborative projects, students representative work, - log book

		requirement
G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in detection of different types of poisonous substances		
K. fill the following reports: -Pre-experiment sheet. -Final comment on the results of the experiment		

### **Professionalism**

ILOs	Methods of teaching/ Learning	Methods of Evaluation
L. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	1 Objective structured practical examination 2.student survey 3-social and cultural activities - log book
M. Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information		
N. Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities		



## Systems-Based Practice

ILOs	Methods of teaching/ Learning	Methods of Evaluation
O. Work effectively in such health care delivery settings and systems related to the module	Observation & supervision Didactic	.student survey - log book requirement
P. Practice cost-effective health care and resource allocation that does not compromise quality of care in this module		
Q. Assist students in dealing with system complexities.		

### 4. Unit contents (topic s/modules/rotation Course Matrix

#### Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
Vascular System	A-F	A-D	A-H	A-Q
Immune system and lymphoid tissues	A-F	A-D	A-H	A-Q
Endocrine system	A-F	A-D	A-H	A-Q
Urinary system	A-F	A-D	A-H	A-Q
Eye	A-F	A-D	A-H	A-Q
Ear	A-F	A-D	A-H	A-Q
Central nervous system	A-F	A-D	A-H	A-Q
Male genital system	A-F	A-D	A-H	A-Q
Female genital system	A-F	A-D	A-H	A-Q
Skin	A-F	A-D	A-H	A-Q
Respiratory system	A-F	A-D	A-H	A-Q
Digestive system	A-F	A-D	A-H	A-Q

## 5. Methods of teaching/learning:

- 1-Laboratory training
- 2-literatures, Seminars & Presentations
- 3-oral communication & observation Senior staff experience
- 4-Observation & supervision Seminars, Lectures, Hand on workshops

## 6. Methods of teaching/learning: for students with poor achievements

- 1-Extra didactic (lectures, seminars, tutorial)
- 2-Extra laboratory work

## 7. Assessment methods:

### i. Assessment tools: Practical examination

Written oral examinations.

Simulation Record review (report), Log book,  
, Senior staff opinion and check list

### ii. Time schedule: At the end of the second part

### iii. Marks: 150

## 8. List of references

### i- Essential books

- 1- Bancroft's Theory and Practice of Histological  
*Bancroft, and Stevens, (2008)*
- 2- Color Textbook of Histology. 3rd Edition Gartner and –  
Hiatte , 4<sup>th</sup> Edition, 2017

### ii. Recommended books

- 1- Junqueira's Basic Histology: Text and Atlas, NY:  
McGraw-Hill; Thirteenth Edition 2016

2- Bloom and Fawcett Concise Histology. D. W. Fawcett  
(Ronald P. Jensh, Contributing Editor). Chapman and Hall 1998

**iv. Periodicals, Web sites, ... etc**

www.ic.ac.uk/pgaf; email: [pgmedreg@ic.ac.uk](mailto:pgmedreg@ic.ac.uk)











<b>9. Signatures</b>
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<b>Unit Coordinator:</b>	<b>Head of the Department:</b>
<b>Date:</b>	<b>Date:</b>

### Course 3: unit 4 Cytogenetic

**Name of department: Histology Department**  
**Faculty of medicine**  
**Assiut University**  
**2020-2021**

#### 1. Course data

-  **Unit Title: Cytogenetics**
-  **Unit code: HIS202B§**
-  **Speciality Histology**
-  **Number of credit points :Didactic 4 (20%) practical 16 (80 %) total:20**
-  **Department (s) delivering the unit: Genetic Department**  
**faculty of Agriculture in conjunction with Histology**  
**Department**
-  **Coordinator (s):**
-  **Unit coordinator: Staff Members of Genetics Department,**  
**faculty of Agriculture and Histology Department according**  
**to approval of departmental Councils and Faculty Councils.**
-  **Date last reviewed: 1-2021**
-  **General requirements (prerequisites) if any :**
  - MBBCh Degree from any Egyptian Faculties of Medicine
  - Equivalent Degree from medical schools abroad approved by the Ministry of Higher Education
  - Regulatory rules of postgraduate studies of Assiut faculty of medicine
-  **Requirements from the students to achieve unit ILOs are clarified in the joining log book.**

## 2. Unit Aims

1- **To master** Knowledge of techniques for preparing and testing and analysis of human chromosomes in order to identify chromosomal abnormalities associated with the disease in humans and the study of biotechnology to mapping and cloning genes by using DNA probes and study cytogenetic causes of infertility in humans.

## 3. Unit intended learning outcomes (ILOs):

ILOs	Methods of teaching/ Learning	Methods of Evaluation
<p><b>A-Demonstrate the following principles and details of the following;</b></p> <ul style="list-style-type: none"> <li>-The relation between chromosomal abnormalities and disease in humans.</li> <li>- The roll of biotechnology in mapping and cloning genes</li> <li>-Hybridization techniques irradiated topical</li> <li>- The cytogenetics of cancer.</li> <li>- Cytogenetics of infertility in humans.</li> <li>- Molecular cytogenetics.</li> <li>- cytogenetics of pregnancy.</li> <li>- Meiotic studies in Human.</li> </ul>	<p>Didactic (lectures, seminars, tutorial)</p> <ul style="list-style-type: none"> <li>- journal club,</li> <li>- All students are allocated personal tutors whose role is to assist them with personal problems and to advise on pastoral and academic issues.</li> </ul>	<ul style="list-style-type: none"> <li>- Log book</li> <li>- Oral exam</li> <li>- Written exam</li> <li>-The Course evaluation prepared by the Course Director and considered by the Course Committee and the Assiut College, Departmental Teaching Committee. MSc Staff – Student Committee, held each</li> </ul>

		term, with report to Departmental Teaching Committee and the Divisional Postgraduate Teaching Committee
B Mention the factual basics and principles essential to the course.		
C.Mention the basic ethical and medicolegal principles relevant to the course		
D.Mention the basics of quality assurance to ensure good professional skills in his field.		
E.Mention the ethical and scientific principles of medical research		
F.State the impact of common problems related to the field on the society and how good practice can improve these problems		

## B. Intellectual outcomes

ILOs	Methods of teaching/ Learning	Methods of Evaluation
<p>A. - analyzes human chromosomes through bioinformatics and study abnormalities associated with the disease.</p> <p>B- Distinguish different chromosomal abnormalities.</p> <p>C-Analyzes the results of the hybridization of irradiated topical.</p> <p>D- Learn how to analyze karyotype and identify the abnormalities of it.</p>	Didactic (lectures, seminars, tutorial	Written and oral examination -Log book
E. Demonstrate an investigatory and analytic thinking (problem solving) approaches to conditions relevance to genetics.		
F- Design and present audits, cases, seminars in common problems related to genetics.		
G-Formulate management plans and alternative decisions in different situations in the field of genetics.		

## C. Practical skills

ILOs	Methods of teaching/ Learning	Methods of Evaluation
A. Perform basic lab skills essential to the course:		
<p>B- Prepare of human chromosomes slides from different tissues of the body.</p> <p>C-Analyze of the prepared stained slides</p>	log book -	- log book - Objective structure -Check list

## D. General Skills

### Practice-Based Learning and Improvement

ILOs	Methods of teaching/ learning	Methods of Evaluation
A. Perform practice-based improvement activities using a systematic methodology(audit, logbook).	Different slides and photoes Observation - Written & oral communications -Practical experimental and diagnostic skills are developed through laboratory and project work	Written essays, - dissertations,oral presentation in seminars, team working skills through collaborative projects, students representative work, social and cultural activities - log book requirement
B. Locate, appraise, and assimilate evidence from scientific studies		
C. participate in one audit or survey related to the course		
D. Perform data management including data entry and analysis and using information technology to manage information, access on-line medical information; for the research purpose ,preparation of the lectures and seminars		
E. Facilitate the learning of students the different banding techniques		

### Interpersonal and Communication Skills

ILOs	Methods of teaching/ Learning	Methods of Evaluation
F. Create and sustain an ethically sound relationship with students and others as a member of Research work team in the imaging of the slides and spot diagnosis of different types of abberations after staining by different staining methods	Observation & supervision Didactic	team working skills through collaborative projects, students representative work, - log book requirement



G. Elicit information using effective nonverbal, explanatory, questioning, and writing skills.		
H. Provide information using effective nonverbal, explanatory, questioning, and writing skills.		
I. Work effectively with others as a member of a health care team or other professional group.		
J. Present a case in detection of different types of aberrations		
K. fill the following reports: -Pre-experiment sheet. -Final comment on the results of the experiment		

### **Professionalism**

ILOs	Methods of teaching/ Learning	Methods of Evaluation
L. Demonstrate respect, compassion, and integrity; a responsiveness to the needs of students and society that supersedes self-interest; and demonstrate sensitivity and responsiveness to students' culture, gender, and disabilities if are present	Observation & supervision Didactic	1 Objective structured practical examination 2.student survey 3-social and cultural activities - log book
M. Demonstrate a commitment to ethical principles pertaining to provision or withholding of the student and scientific research care, confidentiality of the student information		
N. Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities		

## Systems-Based Practice

ILOs	Methods of teaching/ Learning	Methods of Evaluation
O. Work effectively in such health care delivery settings and systems related to the module	Observation & supervision Didactic	.student survey - log book requirement
P. Practice cost-effective health care and resource allocation that does not compromise quality of care in this module		
A. Assist students in dealing with system complexities.		

<b>4. Unit contents (topic s/modules/rotation Course Matrix</b>
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### Time Schedule: Second part

Topic	Covered ILOs			
	Knowledge	Intellectual	Practical skill	General Skills
introduction - cell biology basis: structure and function of genes and chromosomes	A-F	A-G	A-H	A-Q
Examination and analysis of human chromosomes	A-F	A-G	A-H	A-Q
Banding and painting techniques of human chromosomes	A-F	A-G	A-H	A-Q
Medical importance of chromosomal abnormalities and diagnosis	A-F	A-G	A-H	A-Q
Numerical chromosomal	A-F	A-G	A-H	A-Q

aberration				
Structural chromosomal abnormalities	A-F	A-G	A-H	A-Q
Molecular cytogenetics	A-F	A-G	A-H	A-Q
Cytogenetics of pregnancy	A-F	A-G	A-H	A-Q
Meiotic studies in Human	A-F	A-G	A-H	A-Q

#### 5. Methods of teaching/learning:

- 1- 1- Lectures
- 2- Practice
- 3- Report's
- 4-Discussion

#### 6. Methods of teaching/learning: for students with poor achievements

- 1-Extra didactic (lectures, seminars, tutorial)
- 2-Extra laboratory work

### 7. Assessment methods:

#### i. Assessment tools: Practical examination

Written oral examinations.

Simulation Record review (report), Log book,  
, Senior staff opinion and check list

#### ii. Time schedule: At the end of the second part

#### iii. Marks: 100

### 8. List of references

Essential books	Sudbery, P. and Sudbery, I. 2009. Human Molecular Genetics, Pearson Education Limited.
Recomemded book	1- Cumming, M. 2010. Human Heredity: Principles and Issues. 9th ed. Brooks Cole. 2- Czapulkowski, B. 2001. Analyzing Chromosomes: The Basics Bios Scientific Publishers Ltd. 3- Gardner, A., Howell, R. T. and Davies, T. 2008. Human

	<p>Genetics. Viva Books Pvt. Ltd., New Delhi.</p> <p>4- Heim, S. and Mitelman, F. (ed.). 2009. Cancer Cytogenetics: Chromosomal and Molecular Genetic Abberations of Tumor Cells, John Wiley &amp; Sons, New Jersey.</p> <p>5- Korf, B.R. 2006. Human Genetics and Genomics. Blackwell Publishing Co., Oxford.</p> <p>6- Lewin 2007. Genes IX. Pearson Publishers.</p> <p>7- Rooney, D. E. (ed.). 2001. Human Cytogenetics. Constitutional Analysis. A Practical Approach. Oxford University Press, Oxford.</p> <p>8- Schwarzacher, H.G and Wolf, U. (eds.) 1974. Methods in Human Cytogenetic, Springer-Verlag, Berlin.</p> <p>9- Summer, A.T.2003. Chromosomes: Organization and Function. Blackwell Publishing Co., Oxford.</p> <p>10- Turpin, R. and Lejeune, J. 1969. Human Afflictions and Chromosomal Aberrations. Pergamon Press, Oxford.</p> <p>11- Wegner, R. D. 1999. Diagnostic Cytogenetics, Springer-Verlag, Berlin.</p> <p>12- Yunis, J.J. 1977. New Chromosomal Syndromes, Academic Press, New York.</p> <p>13- The Principles of Clinical Cytogenetics, 2nd ed. 2004 By: Steven L. Gersen and Martha B. Keogle.</p>
Periodicals, Web sites, ... etc	Online Mendelian inheritance in Man (OMIM)

### 9. Signatures

<b>Unit Coordinator:</b>	<b>Head of the Department:</b>
<b>Date:</b>	<b>Date:</b>

Annex 2,  
Program academic  
reference standards

## ***1- Graduate attributes for master degree in medical histology***

***The Graduate (after residence training and master degree years of study) must:***

- 1-** Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and medical audit in the field of Histology.
- 2-** Appraise and utilise scientific knowledge to continuously update and improve clinical practice in Histology.
- 3-** Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Histology.
- 4-** Dealing with common problems and health promotion using updated information in the field of Histology.
- 5-** Identify and share to solve health problems in Histology.
- 6-** Acquire all competencies –including the use of recent technologies- that enable him to provide safe, scientific, and ethical care including update use of new technology in the Histology field.
- 7-** Demonstrate interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community, junior students and the public.
- 8-** Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.
- 9-** Acquire decision making capabilities in different situations related to Histology.
- 10-** Show responsiveness to the larger context of the related health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.
- 11-** Be aware of public health and health policy issues and share in system-based improvement of his practice and related health care.
- 12-** Show appropriate attitudes and professionalism.
- 13-** Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in subsequent stages in Histology or one of its subspecialties.

## ***2- Competency based Standards for basic master degree graduates***

### **2.1- Knowledge and understanding**

***By the end of the program, the graduate should demonstrate satisfactory knowledge and understanding of***

- 2-1-A-** Established basic, biomedical, clinical, epidemiological and behavioral sciences related to the Histology.
- 2-1-B-** The relation between practice in Histology and the welfare of society.
- 2-1-C-** Up to date and recent developments in common problems related to the field of Histology.
- 2-1-D-** Ethical and medicolegal principles relevant to practice in the Histology field.
- 2-1-E** -Quality assurance principles related to the good medical practice in the Histology field.
- 2-1-F-** Ethical and scientific basics of medical research.

### **2.2- Intellectual skills:**

***By the end of the program, the graduate should be able to demonstrate the following:***

- 2-2-A-** Correlation of different relevant sciences in the problem solving and management of common problems of the Histology.
- 2-2-B-** Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Histology.
- 2.2- C-** Demonstrating systematic approach in studying common themes or problems relevant to the Histology field.
- 2-2-D-** Making alternative decisions in different situations in the field of the Histology.

### **2.3- Clinical skills/Practical skills**

***By the end of the program, the graduate should be able to***

- 2-3-A** - Provide practical and or laboratory services that can help patient care, solving health problems and better understanding of the normal structure and function.
- 2-3-B-** Demonstrate practical / laboratory skills relevant to Histology.
- 2-3- C-** Write and comment on reports for situations related to the field of Histology.

## **2.4- General skills**

*By the end of the program, the graduate should be able to*

### ***+ Competency-based outcomes for practice-based learning and improvement***

**2-4-A-** Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.

**2-4-B-** Use all information sources and technology to improve his practice.

**2-4-C-** Demonstrate skills of teaching and evaluating others.

### ***+ Competency-based objectives for interpersonal and communication Skills***

**2-4-D-** Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, lab technical staff and other health professionals.

### ***+ Competency-based objectives for Professionalism***

**2-4-E-** Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

### ***+ Competency-based objectives for Systems-based Practice***

**2-4-F-** Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to effectively use system resources to provide care that is of optimal value.

**2-4-G-** Demonstrate skills of effective time management.

**2-4-H-** Demonstrate skills of self and continuous learning.



# Annex 3, Methods of teaching/learning

**Annex 3, Methods of teaching/learning**

	<b>Patient care</b>	<b>Medical knowledge</b>	<b>Practice-based learning/Improvement</b>	<b>Interpersonal and communication skills</b>	<b>Professionalism</b>	<b>Systems-based practice</b>
Didactic (lectures, seminars, tutorial )	X	X		X	X	X
journal club,	X	X	X			
Educational prescription	X	X	X	X	X	X
Present a case (true or simulated) in a grand round	X	X	X	X	X	
Observation and supervision	X		X	X	X	X
conferences		X	X	X		X
Written assignments	X	X	X	X	X	X
Oral assignments	X	X	X	X	X	X

### **Teaching methods for knowledge**

- ❖ Didactic (lectures, seminars, tutorial )
- ❖ journal club
- ❖ Critically appraised topic
- ❖ Educational prescription (a structured technique for following up on clinical questions that arise during rounds and other venues).
- ❖ Present a case (true or simulated) in a grand round
- ❖ Others

### **Teaching methods for patient care**

- ❖ Observation and supervision /Completed tasks procedure/case logs
- ❖ On-the-job” training without structured teaching is not sufficient for this skill (checklists).
- ❖ Simulation is increasingly used as an effective method for skill/teamwork training.

### **Teaching methods for other skills**

- ❖ Written communication (e.g., orders, progress note, transfer note, discharge summary, operative reports, and diagnostic reports).
- ❖ Oral communication (e.g., presentations, transfer of care, interactions with patients, families, colleagues, members of the health care team) and/or non verbal skills (e.g., listening, team skills)
- ❖ Professionalism, including medical ethics, may be included as a theme throughout the program curriculum that includes both didactic and experiential components (e.g., may be integrated into already existing small group discussions of vignettes or case studies and role plays, computer-based modules) and may be modeled by the faculty in clinical practice and discussed with the resident as issues arise during their clinical practice.

# Annex 4, Assessment methods

**Annex 4, ILOs evaluation methods for Master Degree students.**

Method	Practical skills	K	Intellectual	General skills			
	Patient care	K	I	Practice-based learning/Improvement	Interpersonal and communication skills	Professionalism	Systems-based practice
Record review	X	X	X		X	X	X
Checklist	X				X		
Global rating	X	X	X	X	X	X	X
Simulations	X	X	X	X	X	X	
Portfolios	X	X	X	X	X		
Standardized oral examination	X	X	X	X	X		X
Written examination	X	X	X	X			X
Procedure/case log	X	X					

#### **Annex 4, Glossary of Master Degree doctors assessment methods**

- ❖ Record Review – Abstraction of information from patient records, such as medications or tests ordered and comparison of findings against accepted patient care standards.
  
- ❖ Chart Stimulated Recall – Uses the MSc doctor’s patient records in an oral examination to assess clinical decision-making.
  
- ❖ Mini clinical evaluation: Evaluation of Live/Recorded Performance (single event) – A single resident interaction with a patient is evaluated using a checklist. The encounter may be videotaped for later evaluation.
  
- ❖ Standardized Patients (SP) – Simulated patients are trained to respond in a manner similar to real patients. The standardized patient can be trained to rate MSc doctor’s performance on checklists and provide feedback for history taking, physical examination, and communication skills. Physicians may also rate the MSc doctor’s performance.
  
- ❖ Objective Structured Clinical Examination (OSCE) – A series of stations with standardized tasks for the MSc doctors to perform. Standardized patients and other assessment methods often are combined in an OSCE. An observer or the standardized patient may evaluate the MSc doctors.
  
- ❖ Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.

- ❖ PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by a MSc doctors.
- ❖ Case /problems – assess use of knowledge in diagnosing or treating patients or evaluate procedural skills.
- ❖ Models: are simulations using mannequins or various anatomic structures to assess procedural skills and interpret clinical findings. Both are useful to assess practice performance and provide constructive feedback.
- ❖ 360 Global Rating Evaluations – MSc doctors, faculty, nurses, clerks, and other clinical staff evaluate MSc doctors from different perspectives using similar rating forms.
- ❖ Portfolios – A portfolio is a set of project reports that are prepared by the MSc doctors to document projects completed during the MSc study years. For each type of project standards of performance are set. Example projects are summarizing the research literature for selecting a treatment option, implementing a quality improvement program, revising a medical student clerkship elective, and creating a computer program to track patient care and outcomes.
- ❖ Examination MCQ – A standardized examination using multiple-choice questions (MCQ). The in-training examination and written board examinations are examples.

- ❖ Examination Oral – Uses structured realistic cases and patient case protocols in an oral examination to assess clinical decision-making.
- ❖ Procedure or Case Logs – MSc doctors prepare summaries of clinical experiences including clinical data. Logs are useful to document educational experiences and deficiencies.
  
- ❖ PSQs – Patients fill out Patient Survey questionnaires (PSQs) evaluating the quality of care provided by MSc doctors.



Annex 5,  
Program evaluation tools

<b>By whom</b>	<b>Method</b>	<b>Sample</b>
Quality Assurance Unit	Reports Field visits	#
External Evaluator (s): According to department council External Examiner (s): According to department council	Reports Field visits	#
Stakeholders	Reports Field visits questionnaires	#
Senior students	questionnaires	#
Alumni	questionnaires	#

# Annex 6, Program Correlations:

مصفوفة توافق المعايير القومية القياسية العامة لبرامج الماجستير مع المعايير  
 الأكاديمية المعتمدة من كلية الطب □ جامعة أسيوط لدرجة الماجستير  
 في الهستولوجيا (علم الأنسجة)

## I- General Academic Reference Standards (GARS) versus Program ARS

### 1- Graduate attributes

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
1- Have the capability to be a scholar, understanding and applying basics, methods and tools of scientific research and medical audit in Histology	١- إجادة تطبيق أساسيات و منهجيات البحث العلمي واستخدام أدواته المختلفة
2- Appraise and utilise scientific knowledge to continuously update and improve clinical practice in the Histology	٢- تطبيق المنهج التحليلي واستخدامه في مجال التخصص
3- Acquire sufficient medical knowledge in the basic biomedical, clinical, behavioural and clinical sciences, medical ethics and medical jurisprudence and apply such knowledge in patient care in the field of Histology.	٣- تطبيق المعارف المتخصصة و دمجها مع المعارف ذات العلاقة في ممارسته المهنية
4- Dealing with common problems and health promotion using updated information in the field of Histology.	٤- إظهار وعيا بالمشاكل الجارية و الرؤى الحديثة في مجال التخصص
5- Identify and share to solve health problems in Histology.	٥- تحديد المشكلات المهنية و إيجاد حلول لها
6- Acquire all competencies that enable him to provide safe, scientific, ethical care including update use of new technology in Histology	٦- إتقان نطاق مناسب من المهارات المهنية المتخصصة، واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية

## 1- Graduate attributes (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
<p>7- Demonstrate interpersonal and communication skills that ensure effective information exchange with other health professions, the scientific community, junior students and the public.</p> <p>8- Function as supervisor, and trainer in relation to colleagues, medical students and other health professions.</p>	<p>٧-التواصل بفاعلية و القدرة على قيادة فرق العمل</p>
<p>9- Acquire decision making capabilities in different situations related to Histology.</p>	<p>٨-اتخاذ القرار في سياقات مهنية مختلفة</p>
<p>10- Show responsiveness to the larger context of the related health care system, including e.g. the organisation of health care, partnership with health care providers and managers, practice of cost-effective health care, health economics, and resource allocations.</p>	<p>٩- توظيف الموارد المتاحة بما يحقق أعلى استفادة و الحفاظ عليها</p>
<p>11- Be aware of public health and health policy issues and share in system-based improvement of Histology and related health care.</p>	<p>١٠-إظهار الوعي بدوره في تنمية المجتمع و الحفاظ على البيئة في ضوء المتغيرات العالمية و الإقليمية</p>
<p>12- Show appropriate attitudes and professionalism.</p>	<p>١١-التصرف بما يعكس الالتزام بالنزاهة و المصداقية و الالتزام بقواعد المهنة</p>
<p>13- Demonstrate skills of lifelong learning and maintenance of competence and ability for continuous medical education and learning in Subsequent stages in Histology one of its subspecialties.</p>	<p>١٢-تنمية ذاته أكاديميا و مهنيا و قادرا علي التعلم المستمر</p>

## 2-Academic standards

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.1. A - Established basic, biomedical, clinical, epidemiological and behavioral sciences related to Histology	٢-١-أ- النظريات و الأساسيات المتعلقة بمجال التعلم وكذا في المجالات ذات العلاقة.
2.1. B- The relation between practice in Histology and the welfare of society.	٢-١-ب- التأثير المتبادل بين الممارسة المهنية وانعكاسها علي البيئة.
2.1. C- Up to date and recent developments in common problems related to the Histology	٢-١-ج- التطورات العلمية في مجال التخصص.
2.1. D- Ethical and medicolegal principles relevant to practice in the Histology field.	٢-١-د- المبادئ الأخلاقية و القانونية للممارسة المهنية في مجال التخصص.
2.1. E- Quality assurance principle related to the good medical practice in the Histology field.	٢-١-هـ- مبادئ و أساسيات الجودة في الممارسة المهنية في مجال التخصص
2.1. F- Ethical and scientific basics of medical research.	٢-١-و- أساسيات وأخلاقيات البحث العلمي

## 2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
<p>2.2. A- Correlation of different relevant sciences in the problem solving and management of common problems of the Histology</p> <p>2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Histology.</p>	<p>٢-٢-أ- تحليل و تقييم المعلومات في مجال التخصص والقياس عليها لحل المشاكل</p>
<p>2.2. B- Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Histology</p>	<p>٢-٢-ب- حل المشاكل المتخصصة مع عدم توافر بعض المعطيات</p>
<p>2.2. A- Correlation of different relevant sciences in the problem solving and management of common problems of Histology</p>	<p>٢-٢-ج- الربط بين المعارف المختلفة لحل المشاكل المهنية</p>
<p>2.2. C- Demonstrating systematic approach in studding common themes or problems relevant to the Histology.</p>	<p>٢-٢-د- إجراء دراسة بحثية و /أو كتابة دراسة علمية منهجية حول مشكلة بحثية</p>
<p>2.4. A- Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.</p>	<p>٢-٢-هـ- تقييم المخاطر في الممارسات المهنية في مجال التخصص</p>
<p>2.4. A- Demonstrate practice-based learning and improvement skills that involve investigation and evaluation of their own practice, appraisal services and risk management.</p>	<p>٢-٢-و- التخطيط لتطوير الأداء في مجال التخصص</p>

## 2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.2. D- Making alternative decisions in different situations in the field of Histology	٢-٢-ز - اتخاذ القرارات المهنية في سياقات مهنية متنوعة
2.3.A- Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function. 2.3. B- Demonstrate practical / laboratory skills relevant to Histology	٢-٣-أ - إتقان المهارات المهنية الأساسية و الحديثة في مجال التخصص
2.3. C- Write and comment on reports for situations related to the field Histology	٢-٣-ب - كتابة و تقييم التقارير المهنية
2.3.A- Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal structure and function. 2.3. B- Demonstrate practical / laboratory skills relevant to Histology	٢-٣-ج - تقييم الطرق و الأدوات القائمة في مجال التخصص



## 2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.4. D- Demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, lab technical staff and other health professionals.	٢-٤-أ-التواصل الفعال بأنواعه المختلفة
2.4. A- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.  2.4. B- Use all information sources and technology to improve his practice.	٢-٤-ب- استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
2.4. A- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.  2.4. B- Use all information sources and technology to improve his practice.  2.4. E-Demonstrate Professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.	٢-٤-ج- التقييم الذاتي وتحديد احتياجاته التعليمية الشخصية

## 2-Academic standards (Continuous)

Faculty ARS	NAQAAE General ARS for Postgraduate Programs
2.4. A- Demonstrate Practice-Based learning and Improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management.	٢-٤-د- استخدام المصادر المختلفة للحصول على المعلومات و المعارف
2.4. C- Demonstrate skills of teaching and evaluating others.	٢-٤-هـ- وضع قواعد ومؤشرات تقييم أداء الآخرين
2.4. F- Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to effectively use system resources to provide care that is of optimal value.	٢-٤-و- العمل في فريق ، وقيادة فرق في سياقات مهنية مختلفة
2.4. G- Demonstrate skills of effective time management.	٢-٤-ز- إدارة الوقت بكفاءة
2.4. H- Demonstrate skills of self and continuous learning.	٢-٤-ح- التعلم الذاتي و المستمر

**Comparison between Program ARS & ILOS for master  
degree in Histology**

<b>(ARS)</b>	<b>(ILOS)</b>
<p><b><u>2-1- Knowledge and understanding</u></b></p> <p><b>2-1-A-</b> Established basic, biomedical, clinical, epidemiological and behavioral sciences related to Histology</p>	<p><b><u>2-1- Knowledge and understanding</u></b></p> <p><b>2-1-A-</b> Explain the essential facts and principles of relevant basic sciences including Microtechnique, Histochemistry &amp; Cytochemistry and Cytology related to Histology.</p> <p><b>2-1-B-</b> Mention essential facts of clinical supportive sciences related to Histology</p> <p><b>2-1-C-</b> Demonstrate sufficient knowledge of the main subjects related to Histology</p>
<p><b>2-1-B</b> The relation between practice in Histology and the welfare of society.</p>	<p><b>2-1-H-</b> State the impact of common problems related to the field of Histology on the society and how good practice can improve these problems.</p>
<p><b>2-1-C-</b> Up to date and recent developments in common problems re to the field of Histology.</p>	<p><b>2-1-C-</b> Demonstrate sufficient knowledge of the main subjects related to Histology</p> <p><b>2-1-D-</b> Give the recent and update developments in the most important themes related to Histology</p>
<p><b>2-1-D-</b> Ethical and medicolegal principles relevant to practice in the Histology field.</p>	<p><b>2-1-E-</b> Mention the basic ethical and medicolegal principles that should be applied in practice and are relevant to the field of Histology</p>
<p><b>2-1-E-</b> Quality assurance principles related to the good medical practice in the Histology field.</p>	<p><b>2-1-F-</b> Mention the basics and standards of quality assurance to ensure good practice in the field of Histology.</p>
<p><b>2-1-F-</b> Ethical and scientific basics of medical research.</p>	<p><b>2-1-G-</b> Mention the ethical and scientific principles of medical research methodology.</p>

<b>Continuous</b> <b>(ARS)</b>	<b>continuous</b> <b>(ILOs)</b>
<p><b><u>2-2- Intellectual skills:</u></b></p> <p><b>2-2-A-</b>Correlation of different relevant sciences in the problem solving and management of common problems of the Histology.</p>	<p><b><u>2-2- Intellectual skills:</u></b></p> <p><b>2-2-A-</b> Correlate the relevant facts of relevant basic and clinically supportive sciences with reasoning, diagnosis and management of common problems of the Histology.</p>
<p><b>2-2-B-</b>Problem solving skills based on data analysis and evaluation (even in the absence of some) for common situations related to Histology.</p>	<p><b>2-2-B-</b> Demonstrate an investigatory and analytic thinking approach (problem solving) to common clinical or practical situations related to Histology.</p>
<p><b>2-2-C-</b> Demonstrating systematic approach in studying common themes or problems relevant to the Histology field.</p>	<p><b>2-2-C-</b> Design and /or present a case or review (through seminars/journal clubs.) in one or more of common themes or problems relevant to the Histology.</p>
<p><b>2-2-D</b> Making alternative decisions in different situations in the field of Histology.</p>	<p><b>2-2-D-</b> Formulate management plans and alternative decisions in different situations in the field of Histology.</p>
<p><b><u>2-3- Practical skills:</u></b></p> <p><b>2-3-A-</b> Provide practical and or laboratory services that can help patient care ,solving health problems and better understanding of the normal</p>	<p><b><u>2/3/1/Practical skills)</u></b></p> <p><b>2-3-1-A-</b> Demonstrate competently relevant laboratory skills related to Histology.</p> <p><b>2-3-1-B-</b> Use the up to date technology for the conditions related to</p>

<p>structure and function.</p> <p><b>2-3-B-</b> Demonstrate practical/laboratory skills relevant to that Histology.</p>	<p>Histology.</p> <p><b>2-3-1-C-</b> Develop plans for performing experiments related to Histology.</p> <p><b>2-3-1-D-</b> Carry out common experiments related to Histology.</p> <p><b>2-3-1-E-</b> Counsel and educate students, technicians and junior staff, in the lab about conditions related to Histology.; including handling of samples, devices, safety and maintenance of laboratory equipments.</p> <p><b>2-3-1-F-</b> Use information technology in some of the situations related to Histology.</p> <p><b>2-3-1-G-</b> Share in providing health care services aimed supporting patient care ,solving health problems and better understanding of the normal structure and function.</p>
<p><b>2-3-C-</b> Write and comment on reports for situations related to Histology.</p>	<p><b>2-3-1-H</b> Write competently all forms of professional reports related to Histology (lab reports, experiments reports,).</p>

<b>Continuous</b> <b>(ARS)</b>	<b>continuous</b> <b>(ILOs)</b>
<p><b><u>2-4- General skills</u></b></p> <p><b>2-4-A-</b> Demonstrate practice-based learning and improvement skills that involves investigation and evaluation of their own practice, appraisal and assimilation of scientific evidence, improvements in provided services and risk management</p>	<p><b><u>2/3/2 General skills</u></b></p> <p><b>2-3-2-A-</b> Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).</p> <p><b>2-3-2-B-</b> Appraises evidence from scientific studies.</p> <p><b>2-3-2-C-</b> Conduct epidemiological studies and surveys.</p>
<p><b>2-4-B-</b> Use all information sources and technology to improve his practice.</p>	<p><b>2-3-2-C-</b> Conduct epidemiological Studies and surveys.</p> <p><b>2-3-2-D-</b> Perform data management including data entry and analysis and Using information technology to manage information, access on-line medical information; and support their own education.</p>
<p><b>2-4-C-</b> Demonstrate skills of teaching and evaluating others.</p>	<p><b>2-3-2-E-</b> Facilitate learning of students, lab technical staff and other health care professionals including their evaluation and assessment.</p>
<p><b>2-4-D-</b> Demonstrate interpersonal and communication skills that result in effective</p>	<p><b>2-3-2-F-</b> Maintain therapeutic and ethically sound relationship with patients, their families, lab</p>

<p>information exchange and teaming with patients, their families, lab technical staff and other health professionals.</p>	<p>technical staff and other health professionals.</p> <p><b>2-3-2-G-</b> Elicit information using effective nonverbal, explanatory, questioning, and writing skills.</p> <p><b>2-3-2-H-</b> Provide information using effective nonverbal, explanatory, questioning, and writing skills.</p> <p><b>2-3-2-I-</b> Work effectively with others as a member of a team or other professional group.</p>
<p><b>2-4-E-</b>Demonstrate professionalism behaviors, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.</p>	<p><b>2-3-2-J-</b> Demonstrate respect, compassion, and integrity; a responsiveness to the needs of patients and society.</p> <p><b>2-3-2-K-</b> Demonstrate a commitment to ethical principles including provision or withholding of clinical care, confidentiality of patient information, informed consent, business practices.</p> <p><b>2-3-2-L-</b>Demonstrate sensitivity and responsiveness to others' culture, age, gender, and disabilities.</p>
<p><b>2-4-F-</b> Demonstrate an awareness of and responsiveness to the larger context and system of health care and academic services and the ability to</p>	<p><b>2-3-2-M-</b>Work effectively in relevant academic and health care delivery settings and systems including good administrative and time management.</p>

<p>effectively use system resources to provide care that is of optimal value.</p>	<p><b>2-3-2-N-</b> Adopt cost-effective practice and resource allocation that does not compromise quality of services.  <b>2-3-2-O-</b> Assist patients in dealing with system complexities.</p>
<p><b>2-4-G-</b> Demonstrate skills of effective time management.</p>	<p><b>2-3-2-M-</b> Work effectively in relevant academic or health care systems including good administrative and time management.</p>
<p><b>2-4-H-</b> Demonstrate skills of self and continuous learning.</p>	<p><b>2-3-2-A-</b> Perform practice-based improvement activities using a systematic methodology (share in audits and risk management activities and use logbooks).</p>



## II-Program matrix

### Knowledge and Understanding

Course	Program covered ILOs							
	2/1/ A	2/1/B	2/1/C	2/1/ D	2/1/E	2/1/F	2/1/ G	2/1/ H
Course 1 : Histology 1	✓	✓	✓	✓	✓			
General Pathology	✓	✓	✓	✓				
course 3 : Histology 2	✓	✓	✓	✓	✓	✓	✓	✓

## Intellectual

Course	Program covered ILOs			
	2/2/A	2/2/B	2/2/C	2/2/D
Course 1 Histology 1	✓	✓		
Course 2 General pathology	✓	✓		
Specialized course course 3 : Histology 2	✓	✓	✓	✓

## Practical Skills

Course	Program covered ILOs							
	2/3/1/ A	2/3/1/ B	2/3/1/ C	2/3/1/ D	2/3/1/ E	2/3/1/ F	2/3/1/ G	2/3/1/ H
Course 1 : Histology 1	✓	✓	✓	✓		✓		✓
Course 2: General pathology	✓	✓	✓	✓		✓		✓
Specialized course course 3 : Histology 2	✓	✓	✓	✓	✓	✓	✓	✓

## General Skills

Course	Program covered ILOs							
	2/3/2/ A	2/3/2/ B	2/3/2/ C	2/3/2/ D	2/3/2/ E	2/3/2/ F	2/3/2/ G	2/3/2/ H
Course 1 : Histology 1	✓	✓		✓	✓	✓	✓	✓
Course 2: General pathology	✓	✓		✓	✓	✓	✓	✓
Specialized course course 2 : Histology 2	✓	✓	✓	✓	✓	✓	✓	✓

### General Skills



Course	Program covered ILOs						
	2/3/2/I	2/3/2/J	2/3/2/K	2/3/2/L	2/3/2/M	2/3/2/N	2/3/2/O
Course 1 : Histology 1		✓	✓		✓	✓	
Course 2 : General pathology		✓	✓		✓	✓	
Specialized course course 3 : Histology 2	✓	✓	✓	✓	✓	✓	✓

Annex 7,  
Additional information:

 **Department information:**

- Four student's labs. (A,B,C&D).
- Monitor system.
- Lecture room with data show.
- Lab. for preparation of student's slides.

 **Staff members:**

-  **Prof. Rokaia A.Shamikh**
-  **Prof. Sanaa A.Elgayar.**
-  **Prof. Madiha M. Mohamed**
-  **Prof. Safaa A.Abdel-Maksoud**
-  **Prof. Manal M.Shehata**
-  **Prof. Amal Taha Abu-elgheet**
-  **Prof. Heba M.Saad**
-  **Prof. Amal M. M.Abdel-hafez**
-  **Prof. Sohair A. Eltony (HEAD OF HISTOLOGY DEPARTMENT)**
-  **Prof.Hemmat H.Ghafeer**
-  **Prof.Kawthar M.Abdel-Hamid**
-  **Prof .Dalia Abdou El-Gamal**
-  **Ass.Prof. Manal Mohamed said**
-  **Ass.Prof. Manal Othman**
-  **Ass.Prof .Nashwa A.M.Mostafa**
-  **Dr.Salwa Fares Ahmed**
-  **Dr.Ola Abdel Tawab**
-  **Dr.Safaa Said Hassan**
-  **Dr.Fatma Yassin**
-  **Dr. Asmaa Fathy**
-  **Dr.Heba A. Mubarak**
-  **Dr.Tarek Hamdy**
-  **Dr.El shimaa Abdel Khaliq**
-  **Dr.Marwa Hassan Bakr**
-  **Dr.Maha Abdel Raof**
-  **Dr.Amal Abdel Tawab**
-  **Dr.Rhagda el sherief**

### **+ Opportunities within the department:**

Scientific library containing Histology books, periodicals, reviews, researches, MD and MSC thesis.

Seminar room.

-Immunohistochemical lab.

-Fluorescence microscope.

-Research lab.

-Morphometric study lab.

### **+ Department quality control insurance for completing the program:**

+ Evaluation by the Department head and staff members.

+ Regular assessments.

+ Log book monitoring.

+ Recent equipments

**(End of the program specification)**