



COURSE SPECIFICATION

Advanced Histology & Cell biology

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Programme offering the course:	M.D. degree of Histology & Cytology
(2) Department offering the programme:	Histology & Cell biology
(3) Department responsible for teaching the course:	Histology & Cell biology
(4) Part of the programme:	Second part
(5) Date of approval by the Department's council	28/2/2018
(6) Date of last approval of programme specification by Faculty council	
(7) Course title:	Advanced Histology & Cell biology
(8) Course code:	HIST 602
(9) Credit hours:	23 theoretical + 12 practical+3 activities
(10) Total teaching hours:	345 h theoretical+ 360 h practical

(B) Professional information

(1) Course Aims:

The broad aims of the course are as follows:

The aim of this course is to prepare the candidate to be professional in the field of Histology and cell biology through increasing his/ her awareness about the methods of tissue culture and how to use it in different researches.

And to be excellent in the fields of

1. Effective communication and leading team in different situations.
2. Decision making in vision of the information available.
3. Continuous self development and transfer of knowledge and expertise to others
4. Advanced diagnostic procedures including hematological, cytological, Immunological and ultra structural investigations.
5. Presentation of scientific data pertaining to the field, in conferences both as poster and verbal presentations and to take part in group discussions.

(2) Intended Learning Outcomes (ILOs):

Intended learning outcomes (ILOs); Are four main categories: knowledge & understanding to be gained, intellectual qualities, professional/practical and transferable skills.

On successful completion of the course, the candidate will be able to:

A- Knowledge and Understanding

A1 Describe the structure of cytoplasmic contents (including membranous and non-membranous cell organelles) and nucleus and to identify how each of them performs its function for the cell.

A 2 Recognize the behavior of different cells during cell cycle and also during cell injury including apoptosis and necrosis.

A3 Describe the microscopic structure of different types of epithelium

A4 Identify general characteristics and structure of connective tissue (synthesis, character, I.M. & F.M. of fibrous cells (I.M. & F.M. of fibrocytes))

B- Intellectual skills

B1 Interpret the differences between the microscopic structure of different body cells and organs.

B2 Relate the light and electron microscopic findings to the function of the cell.

B3 Interpret the different electron-micrographs of different cells of different body organs.

B4- Select appropriate methods to reveal specific microscopic features of cells and tissues.

B5- Diagnose slides different from those seen during his course but of the same organs or tissues previously studied.

C- Professional/practical skills

C1 - Use the microscope efficiently.

C2 Handle the histological glass slides and examine them using the maximum microscopic facilities

C3 Prepare tissues and process them to be examined by light and electron microscopes

D- Communication & Transferable skills

- D 1 Search literature as a part of self studying.
- D 2 Use the internet to gather information and look for different techniques.
- D 3 Present data efficiently and properly
- D 4 Acquire continuous self learning skills.
- D5 Demonstrate effective presentation skills
- D 6 Work in team.
- D 7 Use of information technology to serve the development of professional practice
- D 8 Teach others and evaluate their performance

Subjects	Lecture	Total
Advanced Cytology <ul style="list-style-type: none"> • Introduction, Membranous Cell organelles • Non- Membranous Cell organelles • Cell inclusions • Cell cycle • Apoptosis and necrosis 	11 10.75 10 10 10	51.75
Advanced study of General Histology <ul style="list-style-type: none"> • Epithelium • Connective tissue • Cartilage • Bone • Muscle tissue • Nervous tissue • Blood • Vascular system • Lymphatic system • Respiratory system • The macrophage system 	10 10 7 10 10 11 11 9 10 10 2.75	120.75

Advanced study of Special Histology <ul style="list-style-type: none"> • Skin • Urinary System • Digestive Tract • Digestive Glands • Endocrine Glands • Male Genital System • Female Genital System 	13 13 25.5 11 15 13 13	103.5
Advanced study of Neuro-Histology <ul style="list-style-type: none"> • Meninges, CSF • Spinal cord • Brain stem • Cerebrum • Cerebellum • Extrapyramidal system • Thalamus, hypothalamus • Limbic System • Olfaction & taste • Aging of CNS, Alzheimer's D • The Eye • The Ear • Receptors 	5 6 6 5 5 5 6 5 5 5 6 5 5	69
Total Teaching Hours		345

B- Practical module (6 h/week):

Subjects	Practical	Total Hours
I. Cytology <ul style="list-style-type: none"> • Preparation of tissue sections and handle parts of microscopy • Performing special stains for mitochondria, Golgi apparatus, centriols, Cell coat. • Cell inclusions: staining of lipids by Sudan III and Sudan black • Staining DNA using Feulgin reaction and Methylene green pyronin stain • Interpretation of apoptotic and necrotic cells. 	11 11 10 11 11	54
II. General Histology: <ul style="list-style-type: none"> • Preparation of paraffin sections of epithelium • Staining connective tissue • Preparation of paraffin sections of different types of cartilage • Preparation of sections of different types of bone • Preparation of sections of skeletal, cardiac, and smooth muscle • Preparation and staining of nerve trunk, spinal and sympathetic ganglia • Preparation &staining of blood film • Preparation and staining of sections of different types of blood vessels. • Preparation and staining of lymph node, thymus, tonsils, and spleen • Preparation and staining of sections of lung and trachea • Staining of macrophages in different organs 	12 12 12 12 12 12 12 12 12 12 12 12 12 6	126

III. Special Histology: <ul style="list-style-type: none"> • Preparation and staining of sections of thin and thick skin • Preparation and staining of Tongue, Esophagus, Stomach, intestine • Preparation and staining of sections of digestive glands • Dissection of endocrine glands, preparation and staining of sections • Urinary bladder Preparation, Staining of kidney and ureter • Dissection and staining of testes, prostate, seminal vesicles and penis • Staining & identification of ovary, uterus, fallopian tube & mammary glands 	13,5 27 13,5 13,5 13,5 13,5 13,5	108
IV. Neurohistology: <ul style="list-style-type: none"> • Dissection and staining of Meninges & aspiration of CSF • Dissection and staining Spinal cord • Dissection and staining medulla, Pons, and midbrain • Dissection and staining Cerebrum • Dissection and staining Cerebellum • Interpretation of sections demonstrating Extrapyramidal system • Interpretation of sections of Thalamus & hypothalamus, Limbic System • Interpretation of sections demonstrating Olfaction & taste • Interpretation of sections demonstrating Aging of CNS and Alzheimer's D • Dissection and staining the Eye and identification of its parts • Dissection and staining the Ear • Staining of Receptors in different tissues; as skin and urinary bladder 	2 3 3 2 2 2 3 2 2 2 2 2	27
Total		360

C- Scientific Activities (Advanced activities done by the candidate):

Subjects	Activities			Credit Hours
I. Preparation and staining of tissues samples	Cytology	Obtaining & processing for 2 samples	Staining of 2 samples	1
	General Histology	Obtaining & processing for 5 samples	Staining of 5 samples	
	Special Histology	Obtaining & processing for 5 samples	Staining of 5 samples	
	Neuro-histology:	Obtaining & processing for 2 samples	Staining of 1 sample	
II. Seminars	1- Seminar attendance: 6 year			1/2
	2- Seminar performance: 3/year			
III. Student teaching	Attendance: 6/ week			1
	performance: 4/ week			
IV. Conferences	Attendance 3/ year			1/2
V. Workshops attendance	Attendance 1/year			

Total	3 cr hours
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(3) Teaching methods:

- 4.1: Lectures
- 4.2: Practical sessions (microscopic analysis of slides consisting of human and animal tissues and organs & electron micrograph reporting)
- 4.3: Workshops
- 4.4: Seminars: the student presents a seminar in his/her own field of interest and attends the weekly seminars presented by invited guests, faculty members and students
- 4.5: Self learning (internet search for specific topics)

(4) Assessment methods:

- 5.1: Written exam for assessment of A1-20, B1-5, D1- 5
- 5.2: OSPE exam for assessment of A1-20, B1-5, C1-8, D1-5
- 5.3: Structured oral exam for assessment of A1-20, B2-4, D1-6
- 5.4: MCQ exam for assessment of A1-20,B1-5

Percentage of each assessment to the total mark:

Written exam: 160 MARKS

MCQ=40 MARKS

OSPE: 100 MARKS

Structured oral exam: 100 MARKS

Other assessment without marks: seminars.

(5) References of the course:

- 6.1: **Hand books:** Histology and cell biology department book
- 6.2: **Text books:** Basic Histology, Bloom & Fawcett Histology, The Cell and Ham's Histology
- 6.3: **Journals:** Histology & histochemistry journal, Cell, Cell biology, Science, Egyptian Journal of Histology and Cytology
- 6.4: **Websites:**
<http://www.lab.anhb.uwa.edu.au/mb140/>
<http://www.histology-world.com/stains/stains.htm>,
<http://www.bu.edu/histology/m/index.htm>
<http://www.uni-mainz.de/FB/Medizin/Anatomie/workshop/EM/EMAtlas.html>

(6) Facilities and resources mandatory for course completion:

Data show for power point presentations

Laboratories

Library

Computers

Microscopes

Course coordinator: Dr. Shireen Mazroa

Head of the department: Dr. Amal Mohamed Moustafa

Date: 28/ 2 / 2018