

Cairo University
Faculty of Medicine
Department of Pathology

Course specifications

Course title: **Pathology for 3d year students**
2008/2009 code 210

Department offering the course: Pathology department
Academic year: 3d year MBBCh. Program
Date of specification approval: 1 Aug 2007

A) Basic information

- Allocated marks: 300 marks
- Course Duration: 26 Wks of teaching
- Teaching hours: 9 hrs/wk 1st half- 11 hrs/week 2nd half total 214 teaching hours (Lectures/e-learning: 110- Practical: 90 Interactive learning (IL)/tutorial: 14)

B) Professional information

I. OVERALL AIM OF THE COURSE:

1. **To familiarize** students with the basic disease patterns and their underlying mechanisms within the specific organ systems as step to preparing the student for his clinical rounds and future as a practitioner
2. **To promote** life long competencies necessary for continuous professional development

2. INTENDED LEARNING OUTCOMES:

A- KNOWLEDGE and UNDERSTANDING:

By the end of the course, students should be able to:

- 1- **Define and discuss** the main disease categories that may affect the body (general pathology) as well as the basic mechanisms underlying these disorders (etiology , pathogenesis & natural history) **(a.2-3-4-7)**
- 2- **Describe** the morphologic (gross & microscopic) changes occurring as a result of such disease processes in various organ systems **(a.4)**

- 3- **Determine** the fate & complications of each particular disease and outline the general management procedures **(a.4-9)**

B- INTELLECTUAL SKILLS

DATA ACQUISITION, DATA ANALYSIS & PROBLEM SOLVING

By the end of the course, students should be able to:

- 4- **Predict** the signs and symptoms of a disease based on the underlying gross & microscopic tissue changes responsible for symptomatology and physical changes in the patient, thereby enabling the student recognize patients with life/organ threatening conditions **(b.2)**
- 5- **Interpreting** in a professional manner a pathology report **(b.2)**
- 6- **Choosing the** most appropriate cost effective pathologic diagnostic procedures **(b.3)**
- 7- **Selecting** the necessary techniques for sample reception & processing according to the nature of specimen received **(b.3)**
- 8- **Frame** a question, search the literature, collect, analyze, critically appraise and utilize the obtained information to solve a particular clinical problem according to the principles of evidenced based medicine **(b.3)**
- 9- **Prepare for** scientific research by collection and interpretation of medical data **(b.8)**
- 10- **Apply english** language as needed for appropriate learning and communication in relation to medicine **(b.9)**

C-PROFESSIONAL AND PRACTICAL SKILLS (CLINICAL & LABORATORY SKILLS):

By the end of the course, students should be able to be prepared for their upcoming clinical training by:

- 11- **Diagnosing and fully reporting or describing** the pathologic picture of a disorder based on gross or microscopic morphology. **(c-4)**
- 12- **Adopt** suitable measures for safety and infection control **(c-17)**

D- GENERAL AND TRANSFERABLE SKILLS

By the end of the course, students should be able to:

- 13- **Appreciate** the importance of life long learning and show a strong commitment to it **(d-1)**
- 14- **Use** the sources of biomedical information to remain current with the advances in knowledge & practice **(d-2)**
- 15- **Maintain** a professional image in manner, dress, speech and interpersonal relationships that is consistent with the medical profession's accepted contemporary standards in the community **(d.4)**
- 16- **Express** themselves freely and adequately by improving their descriptive capabilities and enhancing their communication skills **(d.4)**
- 17- **Work** effectively in a team **(d.5)**

E-ATTITUDE

Course specifications: PATHOLOGY

By the end of the program, the undergraduate student will acquire the skills required to

- 18- **Interact** effectively with individuals regardless of social, cultural or ethnic backgrounds and regardless of their disabilities(e.1).
- 19- **Communicate** clearly, sensitively and effectively with the patients and their families or relatives and with colleagues from different health care professions, respecting their contributions in patient's management regardless of degree or occupation.(e.2)
- 20-**Respond** appropriately according to the seriousness of the pathologic diagnosis in an acceptable humane manner, treating the patient as a whole rather than a lesion or specimen **(e.2)**
- 21-**Identify** difficult ethical situations and how to properly deal with them **(e.2)**
- 22-**Respect** the patient's right to know and share in decision making as well as dignity, privacy, information confidentiality and autonomy.**(e.4)**
- 23-**Cope compassionately** with situations of stress and grief, where communication for breaking bad news is difficult **(e,5)**

3. COURSE CONTENTS:

Topic	% total hours	Number of hours		
		Total	Lectures/e-learning	Practical/IL
General Pathology	42.5	91hrs	45 hrs	46 hrs
1. Introduction to the science - PATHOLOGY & its related disciplines	0.5	1	1	
2. TECHNICAL POINTERS ON SAMPLE HANDLING, SENDING, PROCESSING & REPORTING & quality control of surgical biopsy/cytology material	0.5	3	1 e-l	2
3. INFLAMMATION & REPAIR	5.5	12	8	4
4. CELL INJURY, ACCUMULATIONS DEPOSITIONS & diseases of AGEING	5	11	7	4
5. GROWTH DISTURBANCES & NEOPLASIA	11	24	8	16
6. FLUID & HEMODYNAMIC DISTURBANCES	7	15	7	8
7. IMMUNE RESPONSE & NON SPECIFIC & VIRAL INFECTION	1.5	3	3	

Course specifications: PATHOLOGY

8. SPECIFIC INFECTIONS-GRANULOMA, & MYCOTIC DISEASES	7.5	16	4	12
9. GENETIC, ENVIROMENTAL, NUTRITIONAL DISORDERS & IONIZING RADIATION EFFECTS	1.5	3	3	
10. CYTOLOGY	0.5	1	1	
11. IMMUNOHISTOCHEMISTRY & HOW TO RESEARCH A TOPIC	0.5	1	1	
12 Question types	0.5	1	1	
Special Pathology	57.5%	123	65	14 & 44 (58hrs)
12. CARDIOVASCULAR(heart & blood vessels)	7.5	16	10	2 4
13. RESPIRATORY	6.5	14	8	2 4
14. GASTROINTESTINAL	6.5	14	8	2 4
15. HEPATOBILIARY & PANCREATC	5.5	12	6	2 4
16. URINARY TRACT & KIDNEY	6	13	7	2 4
17. MALE GENITAL	3	7	3	4
18. FEMALE GENITAL & BREAST	6.5	14	8	2 4
19. ENDOCRINE	3	7	3	4
20. BLOOD & LYMPHORETICULAR	3	7	3	4
21. SKELETAL SYSTEM ,SOFT TISSUE, JOINTS & SKIN	4.5	10	4	2 4
22. PERIPHERAL & CENTRAL NERVOUS SYSTEMS	3.5	8	4	4
24. How to answer an exam	0.5	1	1	
	100%	214	110	14 + 90=104

3-A: TOPICS:

A) GENERAL PATHOLOGY

1. INTRODUCTION TO PATHOLOGY
 - Overview and orientation
 - Pathology & its related disciplines
2. TECHNICAL POINTERS ON SAMPLE HANDLING, SENDING, PROCESSING & REPORTING & quality control of surgical biopsy material
3. INFLAMMATION & REPAIR
 - a. Acute inflammation
 - b. Chronic inflammation
 - c. Repair : Regeneration-Organization & healing in special conditions
4. CELL INJURY, ACCUMULATIONS & DEPOSITIONS
 - Cell response to injury: degenerative changes, necrosis & apoptosis
 - Accumulations & storage diseases

- Depositions, abnormal calcifications & abnormal pigmentations
 - Diseases of ageing
5. IMMUNE RESPONSE & NON SPECIFIC INFECTIONS
- Immunity & hypersensitivity
 - Immunodeficiency
 - Autoimmunity
 - Non specific bacterial infections: bactremia, pyemia, septicemia & toxemia
 - Viral infections
6. SPECIFIC INFECTIONS- GRANULOMA
- Bacterial: TB- syphilis - leprosy
 - Fungal
 - Parasitic: Bilharziasis
7. FLUID & HEMODYNAMIC DISTURBANCES
- Hyperemia – congestion- edema-thrombosis – embolism
 - Ischemia – infarction- gangrene- hemorrhage-shock
8. GROWTH DISTURBANCES & NEOPLASIA
- Hyperplasia- metaplasia- dysplasia- hypertrophy-atrophy-hamartoma- tumor-like lesions
 - Benign tumors
 - Malignant tumors
9. GENETIC, ENVIRONMENTAL, NUTRITIONAL DISORDERS & IONIZING RADIATION DISORDERS
- Basis of genetic disease- hereditary disorders & congenital malformations
 - Environmental disorders
 - Nutritional disorders: protein calorie malnutrition – vitamin disorders – trace element disturbances
 - Disorders of ionizing radiation
10. CYTOLOGY
- ✓ Types of samples & proper handling, fixation of material& necessary clinical data
 - ✓ General features of reactive, benign & malignant cells
 - ✓ Pitfalls in diagnosis & how to interpret a cytology report
11. IMMUNOHISTOCHEMISTRY
12. HOW TO RESEARCH A TOPIC: How to write a review article, how to collect data , reference writing , using the available resources (library & internet), writing structure etc.....

B- SYSTEMIC/ SPECIAL PATHOLOGY

All diseases in each organ systems are studied covering :

- a) Definition, incidence of disease and its epidemiology**
- b) Etiology, pathogenesis & molecular genetics**
- c) Morphologic aspects: gross & microscopic changes**
- d) Fate & complications**
- e) Others (clinical presentation, prognosis, management etc...)**

Systems studied include the following

1. Cardiovascular system : Heart and blood vessels

2. Respiratory system : upper and lower respiratory tract & lungs
3. Gastrointestinal tract: stomach, small and large intestine
4. hepatobiliary systems & pancreatic diseases
5. Urinary tract and renal pathology
6. Male genital system
7. Female genital system & breast disorders
8. Endocrine pathology
9. Blood diseases (peripheral blood and bone marrow disorders) & Lymphoreticular disorders (lymph nodes & splenic diseases)
10. Skeletal system, soft tissue, joint pathology & pathology of the skin
11. Peripheral and central nervous system pathology

3-B: Interactive learning/ TUTORIAL (PROBLEM BASED CASES) :

Are based on the topics discussed in the above mentioned list

1. Acute & chronic Inflammation & repair
2. Degenerative changes
3. Necrosis & cell injury
4. Granulomas
5. Nonspecific infections & immunity disturbances
6. Circulatory disturbances
7. Neoplasms
8. Cardiovascular cases
9. Respiratory case
10. GIT case
11. Hepatobiliary case
12. Kidney
13. Female genital tract & breast
14. Skeletal system case
15. Ethical problems
16. Technical problems
17. Research problem- ethics- terminology
18. Exam question types and how to answer them
19. Evidenced based pathology problem

3-C: PRACTICAL

3C.1 LIST OF SLIDES: (66 slides)

General

- 1-Fibrinous inflammation(peritonitis), liver
- 2-Acute suppurative appendicitis
- 7- Myocardical scar
- 10- Amyloidosis, Kidney
- 12- Hepatic steatosis

Systemic

- 62 Atherosclerosis, small artery
- 63- Allergic nasal polyp
- 67- Bronchogenic carcinoma
- 68- Pleomorphic adenoma salivary gland
- 73-Liver cirrhosis

Course specifications: PATHOLOGY

- 14- Chronic venous congestion, lung
- 15- Chronic venous congestion liver
- 17- Recent thrombus
- 18- Spleen infarction
- 20-Recent infarction, lung
- 22- Tuberculosis, lymph node.
- 23- Chronic fibrocaceous T.B. lung
- 24- Miliary T.B lung.
- 25- Rhinoscleroma
- 26- Mycetoma.
- 28- Schistosomiasis, large intestine
- 29- Schistosomal polyp intestine.
- 30- Schistosomiasis, urinary bladder
- 31- Schistosomial hepatic fibrosis
- 33- Schwannoma
- 34-Leiomyoma
- 35-Lipoma
- 37- Chondroma.
- 38- Capillary hemangioma
- 39- Cavernous hemangioma
- 40- Cavernous hemangioma
- 41- Squamous cell papilloma
- 42- Adenomatous polyp, large intestine
- 43- Pericanalicular fibroadenoma.
- 44- Intracanalicular fibroadenoma
- 45- Giant cell tumor (osteoclastoma)
- 75- Hepatocellular carcinoma..
- 77- Seminoma
- 78- Chronic diffuse glomerulonephritis
- 79- Renal cell carcinoma
- 80- Nephroblastoma
- 81- Benign prostatic hyperplasia
- 82- Papillary transitional cell carcinoma,
- 84- Secretory phase, endometrium
- 85- Simple endometrial hyperplasia
- 86- Vesicular mole (hydatidiform mole)
- 89- Mammary cystic hyperplasia
- 90- Intraductal carcinoma, breast
- 91- Lymphocytic lymphoma.
- 92- Reactive follicular hyperplasia L.N
- 93- Hodgkin's lymphoma
- 94-Leukemic infiltrates liver.
- 96- Colloid goiter
- 97 Primary hyperplasia (Toxic goiter)
- 98- papillary ca, thyroid gland
- 99- Meningioma

- 46- Fibrosarcoma
- 48.- Osteosarcoma
- 50- Benign melanocytic nevus.
- 51- Nodular melanoma
- 52- Squamous cell carcinoma
- 53- Basal cell carcinoma
- 54- Invasive duct carcinoma(Scirrhus)breast
- 56- Adenocarcinoma, colon
- 57- Mucoïd carcinoma, large intestine
- 58- Metastatic carcinoma, lymph node

NB: slides of new disorders may be added depending on availability of samples

3-C.2: LIST OF MUSEUM SPECIMENS: (165 jars)

- 12. Cardiovascular system: 29 Jars
- 13. Respiratory system : 18
- 14. GIT: 24
- 15. Hepatobiliary systems & pancreatic diseases : 17
- 16. Urinary tract, male genital system and renal pathology :22
- 17. Female genital system & breast disorders 20
- 18. Endocrine pathology 3
- 19. Blood diseases (peripheral blood and bone marrow disorders) & Lymphoreticular disorders (lymph nodes & splenic diseases) 6
- 20. CNS & PNS 6
- 21. Skeletal system & joint pathology 15
- 22. Soft tissue 8

3-C.3: Fresh SPECIMENS: (according to availability, from autopsy or surgical material)

3-D: E learning:

Technical aspects: TECHNICAL POINTERS ON SAMPLE HANDLING, SENDING, PROCESSING & REPORTING & quality control of surgical biopsy/cytology material

4. TEACHING METHODS:

METHODS USED:

- 1- General lectures
- 2- E-learning
- 3- Tutorials, seminars, Interactive learning: discussions, case studies and oral presentations

4- Practical sessions

- a- Histopathology slide lab
- b- Museum of pathology, Post Mortem & fresh surgical samples

TEACHING PLAN:

LECTURES

Lectures: division into 5 groups average 300 students/group- 5 lectures/week 1 hour duration

Lecture halls 3/5. Each hall provides seating for **300** students and the same lecture is given in each hall on the same day by **5** different professors (times 8-9 am /9-10 /10-11 am). Total number of hours **108** hrs per academic year (45 first term and 65 hrs second term).

Lectures should be illustrated, animated contain video clips or film strips or contain explanatory diagrams and algorithms

E-Learning:

Technical aspects. Material on our Website. For home study or at MEDC facility **2 hrs** <http://www.medicine.cu.edu.eg/> and on CD which will be distributed for free to all students

(Other topics are under construction)

TUTORIALS / Interactive learning activities

14 hours of tutorials (14 hours second term). To be held after main lectures in the 5 rooms. Groups maximum 300 students i.e. 60-100/ per tutor 3 staff members average

from 2.30-4 pm. Half an hour will be for discussing the case of the week, then students will discuss the 3 problems of the week. This would include important **topic discussions, case studies, problem solving & discussion of end of year project** will also be conducted.

PRACTICAL

A) Histopathology

Students are divided into groups of **150-200** and given a brief **half hour** data show on the topics of the week in the small lecture room of Pathology Dept. on the ground floor. They then go to the students lab for their training in microscopy. Every **4-6 students** share a box of **66** slides and 1 microscope and spend **2 hours** /session. There are 2 daily sessions 12-2 pm and 2 -4 pm. Total number of hours **46 hours** (24 hours 1st term 22hrs 2nd term). This would include photos, & diagrammatic representations of both normal & diseased tissues at the microscopical level and how that disease would be at the level of the whole organ

B) Museum

3 Staff members are responsible for demonstration of the jars. Students are divided into groups of **50/ staff** .

Museum is located on the 4th floor of the main theatre building and students spend **2 hours /session**. There are 2 daily sessions 12-2 pm and 2 -4 pm. Total number of hours **44** hours (hours 22 1st term 22 hrs 2nd term) total number of jars 165

C) Postmortem & fresh surgical specimens

Will be displayed with the jars in the museum lesson and included in student CD

Time plan:

Item:	Time schedule	Teaching hours	Total hours
Lectures	Once Daily : 8-9 am /9-10/ 10-11 am same lecture in 3/5 halls at same time	1 hr/day 26 weeks	108
Histopathology laboratory	Once Weekly 12-2 pm same session repeated at 2 -4 pm	2 hrs x 24weeks	46
Museum	Once Weekly 12-2 pm same session repeated at 2 -4 pm	2 hrs x 24 weeks	44
Postmortem/tutorial	Once Weekly at 2 -4 pm	2 hours x 14 weeks	14
E-Learning		2hrs	2
TOTAL			214

5. STUDENT ASSESSMENT:

5-A: ATTENDANCE CRITERIA:

The minimum acceptable attendance is 75%, Students who fail to meet their attendance requirements are not allowed to sit for their final exams.

5-B: ASSESSMENT TOOLS:

TOOL	PURPOSE
Written exam:	Assessment of knowledge & understanding, intellectual skills
Oral exam	Assessment of knowledge & understanding, general and transferable skills (communication), professional attitudes/skills & intellectual skills
Practical exam	Descriptive & diagnostic abilities and theory application (intellectual skills) and professional / practical skills & general and transferable skills
Pop Quizzes (written in lect) & 4drills (oral) in practical class	Assessment of knowledge & understanding, intellectual skills, professional, practical skills and general and transferable skills
1Assignment & end of	Assessment of knowledge & understanding

year project	Assessment of general and transferable skills (life long learning skills & presentation skills)
Interactive learning	Assessment of knowledge & understanding, intellectual skills & Assessment of life long learning skills, ethical attitudes & communication skills
Log book (attendance & grade record)	Assessment of attendance- discussion participation- quizzes/drills & activities evaluation (intellectual skills and professional / practical skills

5-C: TIME SCHEDULE:

<u>EXAM</u>	<u>WEEK</u>
Mid year exam	January 17 Jan
2nd half of academic year	Feb 14
2nd semester exam	March 4 th wk
Practical exam	May 6-14 May
Final exam	June 23 & 24 May

Mid year & 2nd half of academic year EXAMS: A 2 hour written exam is held in January and covers topics present in general path course another term exam is held in March duration 30 mins

FINAL EXAM

A) Written 4 hour exam covers topics present in special pathology and selected topics in general pathology (over 2 days)

B) Practical exam of 50 mins duration (10 stations- 5 minutes for each)

Microscopic

- 3 microscopic slides: diagnose and comment
- 2 Photographs of microscopic pictures of lesions in your box of slides with questions on the lesion's microscopic picture

Gross

- 2 jars to write a report on Jar
- 1 surgical unfixed specimen to report on
- 1 jar photograph with questions on the lesion
- 1 Photograph of a surgical unfixed specimen in the CD of your slide box + MCQ

C) Oral exam 10-15 mins

5-D: GRADING SYSTEM:

Examination:	Marks allocated % Marks	
Mid year 1 st Term exam I January	40	13 %
2 nd half exam March	8	3%
Pop Quizes, activities & end of year project 1	12	4%
Final exam May		
	Written	150 50%
	Oral	20 7%
	Practical	70 23%
TOTAL	300	100%

Course specifications: PATHOLOGY

- The minimum passing score is (60%) provided at least 40% of marks are obtained in the final written exam
- Passing grades are: EXCELLENT $\geq 85\%$, VERY GOOD 75- <85%, GOOD 65- <75% and FAIR 60- <65%.

NB :

- Students with acceptable excuses during the year : Result of practical, oral & written exams will be multiplied by a factor so long as their years work and attendance was acceptable
- Rest of students will have their years work and attendance added to their final result (12 marks)
- If the student is a doubler. The results of his written are multiplied by a factor and his grade considered as just pass

5-E: EXAMINATION DESCRIPTION:

Examination:		DESCRIPTION	Marks allocated
Mid year exam I (2hrs)		Written 2 hour exam covering topics in general pathology short questions- true or false – define- MCQ	40
2 nd half exam (16 mins) March		Topics: 4 special Pathology topics short questions- true or false - MCQ-define- labeled photos	8
Pop Quizzes activities & end of year project 1			12
Final exam			240
-	Written 2 days (2hrs)	Written 3 hour exam covering topics in general & special pathology: short essay questions-true or false, define & MCQ + short case + problems in Pathology	150
	Oral 10-15min	Covers, topics in general & special pathology. 1/2 examiners	20
	Practical (50min)	2 unknown slides – report (14) 3 photomicrograph+ MCQ (21) 1 Photograph of a surgical unfixed specimen + MCQ (7) 2 jars + report on Jar (14) 1 fresh autopsy/surgical report (7) 1 jar photograph with MCQ/ short question-(7)	70
TOTAL			300

6. LEARNING AND REFERENCE MATERIALS:

6-A BASIC MATERIALS

- ☒ Department books: available at faculty bookshops & in the department:
 - Principles of General & Special pathology parts 1 &2 G. Nada et al
 - Color atlases of Gross Pathology and Histopathology G. Nada et al .
- ☒ Box of **average 66 slides + CD** with microscopic images to complement **unavailable slides + Lecture updates+ E-learning program** . Box is to be used during the academic year and returned to department before written exam
- ☒ E-learning material on our web site also available on CD

6-B SUGGESTED MATERIAL

- ☒ Department tutorials & practical data shows, available in the department for department use
- ☒ Recommended Textbook : Basic Pathology by Kumar, Cotran & Robbins - or General & systemic pathology J.C.E Underwood 3d edition Livingstone- or Illustrated Pathology Govan-Macfarlane & Callander. Available at faculty bookshops & main library
- ☒ Lecture & practical lesson CDs available in the department on request
- ☒ Important web sites
 - <http://www.medicine.cu.edu.eg/beta/en/jcalpro/2428.html>
 - <http://www.kasralainy.edu.eg/elearning/>
 - <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://www.gwumc.edu/dept/path/2F.HTM>
 - <http://www.path.uiowa.edu/virtualslidebox/>
 - <http://web.med.unsw.edu.au/pathology/Pathmus/pathmus.htm#InteractiveImages>
 - <http://www.virtualpathology.leeds.ac.uk/>
 - <http://histopathsho.34sp.com/index.html>
 - <http://pathology.class.kmu.edu.tw/index.htm>
 - <http://www.gla.ac.uk/faculties/medicine/teaching/MedCALlist.htm>

7. Facilities required for teaching and learning:

Facilities used in this course include:

1. Lecture halls 5 halls
2. Interactive learning groups 5 rooms
3. Laboratory
4. Museum specimens
5. Fresh material from PM or organs/lesions sent as surgical specimens
6. Projector slides & power point presentations covering all slides in slide box & fresh specimens
7. Set of slides for every 4-6 students to be used throughout the year and handed in before finals
8. CD with all 66 microscopic images in addition to lecture updates & E learning material
9. Data show
10. Overhead projector
11. E-learning material on our website also available on CD

Head of Department & Course coordinator: Prof. Soheir Mahfouz

September 14, 2008