Logbook of PhD of Histology & Cell Biology

(HIST 600)

Personal Data

Name: .....

Department : .....

Mobile Number:.....

E-mail Address: .....

PhD Degree:

Date of registration: ...../...../.....

Signature:

Head of the Department

Vice Dean for research and postgraduate study

Aim of the Logbook:

To provide evidence that the candidate attained the desired level of competence required to gain the award. In this book, the candidate will document all academic and clinical skills he/she attained during their training.

Important regulations (for PhD candidates):

-**To be legible for the first part MD exam** you have to attend at least 70% of the lectures of each course in the semester as evidenced by the logbook

-**To be legible for the (MCQ online) exam at the end of each of second part semesters** you have to attend at least 70% of the lectures of each course/module in the semester as evidenced by the logbook.

- **To be legible for the final MD/PhD exam :**

1- A time interval of 36 months must pass since the **day of degree registration**.

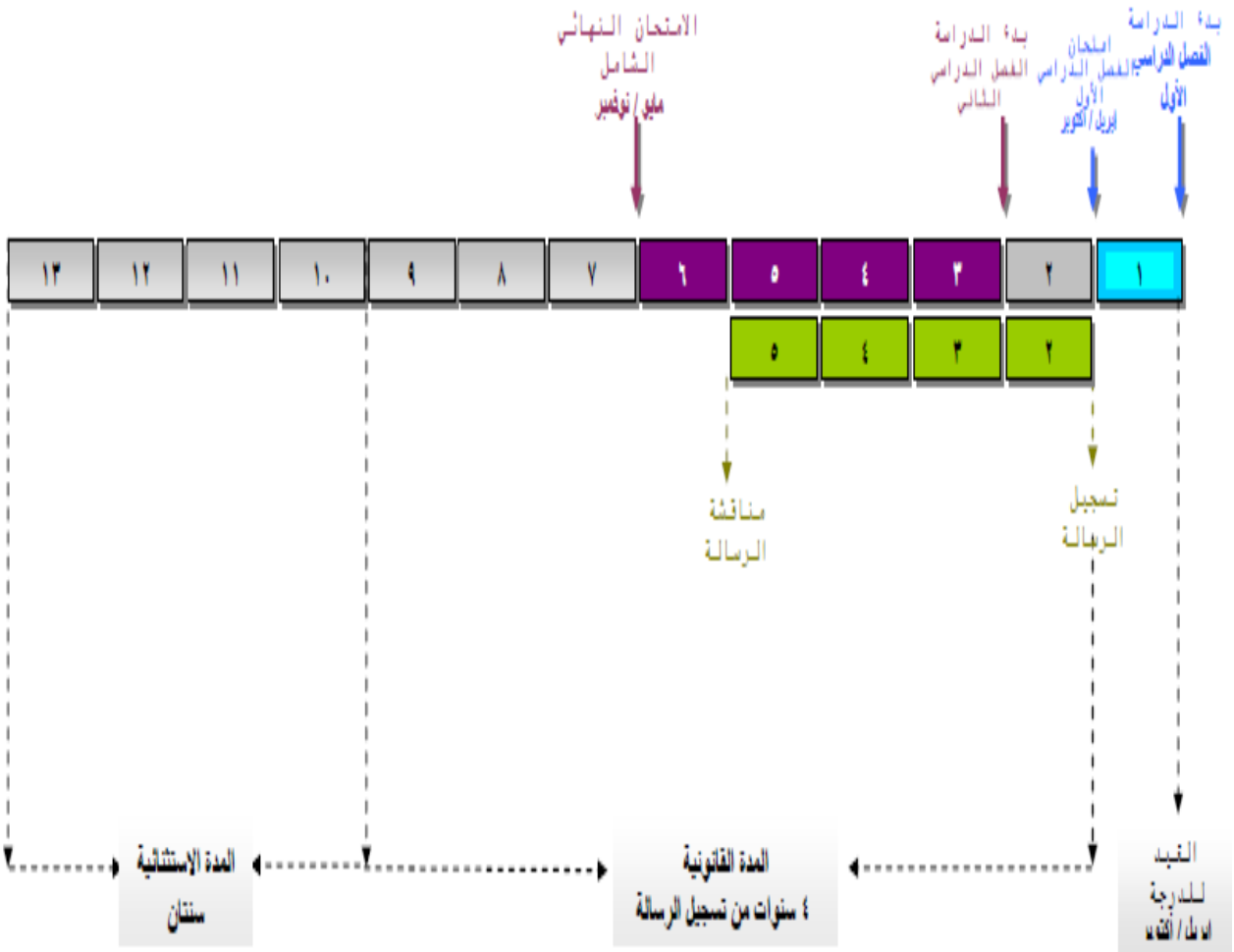
2- You have to take your practical/clinical training **three times/week** for **two years** .

3-You have to register 5 semesters on Ibn lhaythm registration page.

4- You have to attend 70% of the lectures of each course in the second part of MD/PhD degree.

5- You have to fulfill and perform 70% of the practical skills documented in the logbook.

درجـــة الـدكتوراه



مدة الدراسة والساعات المعتمدة

٦ فصول دراسية : ٦٠ ساعة معتمدة

الجزء الأول : فصل دراسي واحد : ٥ ساعات

الرسـالة : ٤ فصول دراسية : ١٥ ساعة

الجزء الثاني : ٤ فصول دراسية

* المقررات الدراسية النظرية : ٢٥ ساعة معتمدة

* كراسة الأنشطة : ١٥ ساعة معتمدة

إلغاء القيد

١- مرور عام دون أن يتقدم الطالب لامتحـان الفصـل الدراسـي الأول بدون عذر مقبول أو إيقاف قيد

٢- إنتهاء المدة القانونية والاستثنائية للحصول على الدرجة

PhD Degree in Histology & Cytology (HIST 600)

المقررات الدراسية وتوزيع الساعات المعتمدة

	المقـــــــــــــررات	Courses	الكـــــــــــود	الساعات المعتمدة	
الفصل الدراسي الأول	الميكروسكوب الإلكتروني	Electron Microscope	HIST 602 EM	2	5
	علم الوراثة	Genetics	HIST 602 GE	3	
	دراسات متقدمة في المجال الطبي - طرق البحث العلمي - الإحصاء الطبي - استخدام الحاسب الآلي في العلوم الطبية	يتم عقد دورات تدريبية لها و يتم استيفاء هذه الدورات بحضورها			
الفصل الدراسي الثاني	مخصص لكتابة بروتوكول رسالة الدكتوراه التي تبدأ مع بداية الفصل الدراسي الثاني و تستمر لمدة أربع فصول دراسية				
الفصل الدراسي الثالث والرابع و الخامس و السادس	علم الأنسجة وبيولوجيا الخلية (مستوى متقدم)	Histology & Cell Biology (Advanced course)	HIST 602	23	25
	المقرر الاختياري (يختار مقرر واحد فقط): • الكيمياء الاكلينيكية • أمراض الدم • علم المناعة	Elective course: • Clinical Chemistry • Haematology • Imuunology	HIST 630 CC HIST 630 HE HIST 607 IM	2	
كراسة الأنشطة	• برنامج التدريب العملي في علم الأنسة والخلايا - تحضير العينات لفحصها بالميكروسكوب الضوئي - تحضير العينات لفحصها بالميكروسكوب الإلكتروني - أنواع الصباغات المختلفة • أنشطة علمية مختلفة		HIST 602 P		15
الرسالة	تبدأ مع بداية الفصل الدراسي الثاني و تستمر لمدة أربع فصول دراسية				15
	إجمالي الساعات المعتمدة				60

نظام الامتحان وتوزيع الدرجات : (دكتوراه الهستولوجيا - الأنسجة والخلايا)

الفصل الدراسي الأول

المقرر	الاختبار	الدرجة تحريري
الميكروسكوب الالكتروني	اختبار تحريري مدته ثلاث ساعات	١٠٠
علم الوراثة	اختبار تحريري مدته ثلاث ساعات	١٠٠

الامتحان النهائي الشامل

المقرر	الاختبار	الدرجة				إجمالي
		Written	MCQ	Structured oral	OSPE	
علم الأنسجة وبيولوجيا الخلية	إختباران تحريريان مدة كل منهما ثلاث ساعات + اختبار شفهي + اختبار عملي	ورقة أولي(٩٠) cytology: general 30% : 70% بنسبة ورقة ثانية (٩٠) Special :Neurohist 60% : 40% بنسبة	١٠ + ١٠	١٠٠	١٠٠	
المقرر الاختياري	اختبار تحريري مدته ساعة	٥٠				
إجمالي الدرجة						٤٥٠

في كل مقرر يتم تدريسه في نهاية الفصل الدراسي MCQ ملحوظة: سيتم عقد امتحان وتحسب درجاته بنسبة ٢٠% من الدرجة الكلية المخصصة

Contents

Section I:

Scientific Lectures

1- First part of phD Degree:

	Code	Course
5 credit hours	HIST 602 EM	**Electron Microscope**
	HIST 602 GE	**Genetics**
		Advanced Courses in: - Research Methods - Medical Statistics - The use of computer in medical science

2- Second part of phD Degree:

Item	Credit Hours		Semester	Course	Code
Thesis	15		2		
Histology & Cell Biology	25	23	3	Cytology	HIST 602
			4	General Histology	
			5	Special Histology	
			6	Neuro-histology	
Elective course:		2		Clinical Chemistry	HIST 602 CC
				Hematology	HIST 602 HE
				Immunology	HIST 602 IM
Practical training course and Activity	15				HIST 602 P

Name of the course: Electron Microscope

Compulsory course **First part of phD**

Credit hours: 2 **Semester: (spring/fall/summer) year.....**

Date	Title of the lecture	Lecturer's signature
	Introduction **Electron microscopy versus light microscop**	
	Tissue preparation • **Spacemen handling** • **Factors affecting fixation**	
	Types of fixation: • **Physical fixation** • **Cryo-fixation**	
	• **Chemical fixation Principles** • **Primary Fixation**	
	Criteria of proper fixation **Post fixation**	
	Buffer **Dehydration**	
	Impregnation	
	Sectioning: •**Trimming** • **Staining semi-thin sections** • **Ultra-thin sections** • **Sectioning problems**	
	Staining : • **Enbloc staining** • **Post staining**	

Date	Title of the lecture	Lecturer's signature
	• Staining of thin sections • Staining of ultra-thin sections	
	• Negative staining • Other staining	
	Instrumental Base : • EM resolution & magnification • The electron gun and condenser system • The image-producing system	
	Scanning E/M and other Types and applications of Electron Microscope	
	Scanning E/M • Introduction, • Materials, • Procedure, • Troubleshooting	
	Special considerations with EM specimens	
	Scanning E/M and other Types and applications of Electron Microscope	

Name of the course: Genetics

Compulsory course **First part of phD**

Credit hours: 3 **Semester: (spring/fall/summer) year.....**

Date	Title of the lecture	Lecturer's signature
Chapter 1: Basic Genetics		
	DNA	
	Chromosomes	
	Centromere & Telomere	
	DNA Replication	
	DNA Transcription	
	RNA Processing	
	Centrifugation Techniques	
	Main 3 Types Of RNA	
	Other Types Of RNA	
	Genetic Code	

Date	Title of the lecture	Lecturer's signature
	Protein Synthesis	
	Regulation Of Gene Expression	
	DNA Repair	
	Mutation	
	Human Genome	
	Genome Of Microorganisms	
	Mitochondrial Genome	
Chapter 2: Medical Genetics		
	Interphase	
	Mitosis	
	Meiosis	
	Karyotyping	
	X & Y Chromosomes	
	Banding Techniques	

Date	Title of the lecture	Lecturer's signature
	Numerical Chromosomal Anomalies	
	Structural Chromosomal Anomalies	
	Patterns of Inheritance: Mendelian	
	Patterns of Inheritance: Non-Mendelian	
	Genetics Of Cancer	
	Gene Therapy	
	Epigenetics	
	Stem Cells	
	Cloning	
Chapter 3: Molecular Biology & Genetic Engineering		
	Restriction Endonucleases	
	Gel Electrophoresis	
	Blotting Techniques	
	ISH, FISH & Microarray Techniques	

Date	Title of the lecture	Lecturer's signature
	Gene Amplification & Cloning Vectors	
	Gene Sequencing	
	Strategies Of Genetic Engineering	
	Applications Of Genetic Engineering	
	Fingerprinting & Footprinting	
	Genetic Variation in Natural Population	
	Gene Mapping	
	State of the Art in Molecular Biology	
	State of the Art in Genetics	

Name of the course: Advanced Histology & Cell biology

(Module 1; Cytology)

Compulsory course **second part of phD**

Credit hours: 3.5 **Semester: (spring/fall/summer)**

year.....

Date	Title of the lecture	Lecturer's signature
	Introduction	
	-Introduction for Histology (time line of microscopy)	
	-Microscopy: principles, types and applications of: • **optical microscope**	
	-Phase contrast microscope **-Differential phase microscope** **-polarized light &prisms**	
	- Ultraviolet and fluorescence microscope **- Confocal laser, atom force microscope**	
	-Cell theory **prokaryon** **eukaryon**	
	Membranous Cell organelles	
	Cell membrane molecular structure: ***Proteins**	

Date	Title of the lecture	Lecturer's signature
	=Cell membrane molecular structure: ***Lipids and cholesterol** ***Lipid raft**	
	- Cell membrane molecular structure: *** types of CHO** ***Cell coat** **-Function of the cell membrane**	
	-Mitochondria: Molecular structure, function and diseases **-Types of ATPases**	
	-Endomembranous system: **-Ribosomes**	
	Golgi apparatus and rER	
	sER &endosomes	
	***Lysosomes** ***Clinical hint**	
	***Peroxisomes** ***Clinical hint**	
	***Intracytoplasmic vesicle trafficking& transportation**	

Date	Title of the lecture	Lecturer's signature
	Non- Membranous Cell organelles	
	-Microtubules **-Centriole** **-Cilia & Flagella** **-Clinical hint**	
	-Microfilaments **-Intermediate filaments** **-Thick filaments**	
	-Cell locomotion **-Clinical hint**	
	Cell inclusions	
	***Stored food** ***Pigments** ***Crystals** **-Cytosol** **-Clinical hint**	
	Nucleus	
	***Introduction** ***Nuclear envelope** ***Nuclear pore & nuclear pore complex**	
	-Nucleus: ***Subnuclear bodies (e.g. Cojal bodies)** *** Nucleolus** ***Nuclear sap** ***Nuclear lamina & clinical hint** ***Dynamics and regulation**	
	***Chromatin** ***Molecular structure**	

Date	Title of the lecture	Lecturer's signature
	-Nucleus: ***Sex chromatin** ***Clinical hint** **Morphology of chromosomes**	
	Cell cycle	
	-Cell cycle (Interphase &mitotic cell division) **-Control of the cell cycle**	
	Meiotic cell division: ***Oogenesis** ***Spermatocytogenesis**	
	-Autoradiography	
	-Mitotic figure **-Mitotic index** **-Hybridization techniques**	
	Apoptosis and necrosis	

Name of the course: Advanced Histology & Cell biology

(Module 2 ; General Histology)

Compulsory course **second part of phD**

Credit hours: 8 **Semester: (spring/fall/summer) year.....**

Date	Title of the lecture	Lecturer's signature
	Epithelium	
	-Covering epithelium	
	-Glandular epithelium	
	-Glandular epithelium	
	-Cell junction	
	-Neuroepithelium	
	- Basement membrane	
	Connective Tissue	
	-C.T. fibres	

Date	Title of the lecture	Lecturer's signature
	- C.T. cells	
	-C.T. proper	
	Clinical hints	
	Cartilage	
	-Cartilage	
	- Growth of Cartilage **-Clinical hint**	
	Bone	
	-Bone cells	
	-Types of bone	
	-Ossification	
	-Growth of Bone **- Factor affecting Bone growth** **-Clinical hint**	

Date	Lecture	Lecturer's signature
	Muscle Tissue	
	-Skeletal muscle fibre	
	-Triad of tubular system	
	-Classification of muscle fibres	
	-Cardiac muscle fibre, wall of the heart	
	-Valves and conducting system	
	-Moderator band	
	-Erythrocytes and thrombocytes	
	-Leucocytes and haemocytopoiesis	
	The Vascular System	
	-General structure of blood vessels Specific character of endothelial cells	
	-Large Arteries	

Date	Lecture	Lecturer's signature
	- Large Veins	
	Medium Sized Artery & Veins **Special types of Medium Sized Artery**	
	-Arterio-venous connection: **1.Blood capillaries** **2.Blood sinusoids** **3.A-V anastomosis**	
	Blood Tissue Barriers	
	Portal circulation in human body	
	Biological factors affecting Blood vessels	
	Clinical hints	
	-The Nervous System	
	-Structure of the neuron **-Types of the neuron**	

Date	Title of the lecture	Lecturer's signature
	-The nerve fibre **- Structure of the nerve fiber** **-Types of the nerve fiber** **- Myelination of nerve fiber**	
	-Difference between peripheral & CNS Myelination	
	-The peripheral nerve trunk	
	Nerve ganglia	
	-The synapse	
	-The neuroglia	
	-Degeneration	
	-Regeneration	
	-Stains for degenerated nerve fibres	
	-Clinical hint	

Date	Title of the lecture	Lecturer's signature
	Lymphatic Tissue	
	-Non capsulated lymphoid follicle	
	-Lymph node	
	-Spleen and tonsils	
	-Tonsils	
	-Thymus gland	
	-The macrophage system	
	Clinical hints	
	The Respiratory System	
	-The conductive portion of the respiratory system	
	-The respiratory portion of the respiratory system	
	-Blood air barrier	
	-Alveolar macrophage	

Date	Title of the lecture	Lecturer's signature
	-Pleura **-blood supply of lung** **Clinical hints**	

Name of the course: Advanced Histology & Cell biology

(Module 3 ; Special Histology)

Compulsory course **second part of phD**

Credit hours:7 **Semester: (spring/fall/summer) year.....**

Date	Title of the lecture	Lecturer's signature
	Skin	
	-Keratinocytes of epidermis of thick skin & medical application	
	-Other cells of epidermis of thick skin &medical application	
	-Dermis of thick skin & immunological activity in the skin	
	-Thin skin & hair follicle	
	-Glands of the skin	
	-Skin pigmentation and nail plate	
	Urinary system	
	-Renal corpuscle & blood filtration Proximal & distal convoluted tubules of kidney	

Date	Title of the lecture	Lecturer's signature
	-Nephron Loop of Henle & collecting tubules	
	-Juxtaglomerular apparatus and blood circulation	
	-Urinary bladder and ureter	
	Gastrointestinal Tract	
	-Oral cavity: ***Tongue & *Lip** ***Pharynx & *Palate**	
	-General structure of alimentary tract **-Esophagus**	
	-Fundus of the stomach	
	- Pylorus of the stomach **- Gastro-eosophageal junction**	
	-Entero-endocrinal system	
	-Small intestine: **Lining epithelium of intestinal villi**	
	-Small intestine: **Lining epith. of intestinal crypt**	
	-Structure of Small intestinal wall	

Date	Title of the lecture	Lecturer's signature
	-Differences between Duodenum, Jejunum and Ileum **- Pyloro- duedenal junction**	
	- Large intestine **- Appendix**	
	-Recto-anal junction	
	Digestive Glands	
	-Organization of exocrine pancreas **-Regulation of pancreatic secretion**	
	-Internal organization of the liver **-Drainage chanelles of the liver:** ***Bile ducts** ***Blood sinusoids** ***Lymphatics**	
	-Zonation of the liver acini **-Cytology of hepatocytes**	
	-Secretory function of hepatocytes **-Gall bladder (structure& histophysiology)**	
	-Organization of salivary glands **-Histophysiology and medical applications of salivary glands**	

Date	Title of the lecture	Lecturer's signature
	Endocrine Glands	
	-Hormonal communication and transmission **-Relation between anterior pituitary and hypothalamus**	
	-Cytology of acidophils &basophils **-Posterior pituitary (structure& histophysiology)**	
	-Thyroid follicular cells **-Thyroid parafollicular cells**	
	-Parathyroid(structure& histophysiology) **-Histophysiology of pineal gland**	
	-Biology of steroid secreting cells **-Development of adrenal gland**	
	-Corticosteroids (types, regulation) **-Relation between adrenal medulla &sympathetic system**	
	-Blood supply of adrenals **-Paraganglia**	
	-Pancreatic islets of Langerhans (cytology &histophysiology)	

Date	Title of the lecture	Lecturer's signature
	Male Genital System	
	-Seminal tubules	
	- Spermatogensis **- Sertoli cells**	
	-The colonal nature of male germ cells **-Spermiogenesis**	
	-Intratesticular ducts	
	-Accessory gland & penis **-Excretory ducts**	
	Female Genital System	
	-Development of the ovary **- Follicular growth**	
	- Ovulation and corpus luteum **-Uterine tubes**	
	-Uterus & uterine cervix **-Endometrium**	
	-Endometrial changes during menstrual cycle	
	- Mammary gland during various stages of female cycle	

Name of the course: Advanced Histology & Cell biology

(Module 4; Neurohistology)

Compulsory course **Second part of phD**

Credit hours: 4.5 **Semester: (spring/fall/summer)**

year.....

Date	Title of the lecture	Lecturer's signature
	Meninges	
	CSF	
	Spinal Cord	
	Spinal cord	
	Ascending Tracts	
	Ascending Tracts	
	Descending Tracts	
	Short Tracts	

Date	Title of the lecture	Lecturer's signature
	Brain stem	
	Medulla	
	Medulla	
	Reticular Formation	
	Pons	
	Pons	
	Midbrain	
	Midbrain	
	Ear	
	Ear 1	
	Ear 2	

Date	Title of the lecture	Lecturer's signature
	Eye	
	Eye 1	
	Eye 2	
	Eye 3	
	Eye 4	
	Receptors	
	Cerebrum	
	Cerebrum 1	
	Cerebrum 2	
	Cerebellum	
	Extrapyramidal syst.em	

Date	Title of the lecture	Lecturer's signature
	Thalamus	
	Hypothalamus	
	Limbic System	
	Olfaction & taste	
	Aging of CNS	
	Aging of CNS	
	Alzheimer's D	
	Brain regions	
	Precerebellar nuclei	
	Refractive media	

	Aging of the eye	
	Labyrinth	
	Aging of the ear	

Name of the course: Clinical Chemistry

Elective course **Second part of phD**

Credit hours: 2 **Semester: (spring/fall/summer) year.....**

Date	Title of the lecture	Lecturer's signature
	1- Renal function tests • Glomerular • Tubular	
	2- liver function tests • aetiologyof liver diseases • actual liver function • hepatocellular injury	
	3- pancreatic disorders	
	4- adrenal gland	
	5- tumor markers	
	6- Markers of coronary artery diseases.	

Name of the course: Hematology

Elective course **Second part of phD**

Credit hours: 2 **Semester: (spring/fall/summer) year.....**

Date	Title of the lecture	Lecturer's signature
	Erythropoiesis	
	Hemoglobinopathies	
	General Aspect and types of Anemia	
	Membranopathies	
	Granulopiosis	
	Leukocytes disorders	
	Histeocytes syndrome	
	Myeloproliferative disorders	
	Myelodysplastic syndrome	

Date	Title of the lecture	Lecturer's signature
	Lymphopoiessis	
	Lymphoproliferative disorders	
	Platelet disorders	
	Coagulative disorders	
	Bone marrow failure	

Name of the course: Immunology

Elective course **Second part of phD**

Credit hours: 2 **Semester: (spring/fall/summer) year.....**

Date	Title of the lecture	Lecturer's signature
	Normal immune system	
	Innate immunity	
	Complement and kinin systems	
	Antigens	
	Immunoglobulins and immunoglobulin genes	
	Antigen - antibody reactions	
	Major histocompatibility complex	
	Inflammation	
	Humoral mmune response 2	

Date	Title of the lecture	Lecturer's signature
	Cell mediated immune response	
	Cytokines and chemokines	
	Mucosal immune system	
	Hypersensitivity reactions	
	Immunodeficiency diseases	
	Immune tolerance and autoimmunity	
	Transplantation immunity	
	Tumour immunity	

Section II:

Practical Skills

List of requirements (may include multiple pages)

Name of the procedure/operation	Total number required	Observer	Assistant	Independent
Obtaining specimens for studying cytology	2			2
Obtaining specimens for studying general histology	5			5
Obtaining specimens for studying special histology	5			5
Obtaining specimens for studying Neuro-histology	2			2

Name of the procedure/operation	Total number required	Observer	Assistant	Independent
Processing specimens for studying cytology	2			2
Processing specimens for studying general histology	5			5
Processing specimens for studying special histology	5			5
Processing specimens for studying Neuro-histology	2			2

Name of the procedure/operation	Total number required	Observer	Assistant	Independent
Staining sections for studying cytology	2			2
Staining sections for studying general histology	5			5
Staining sections for studying special histology	5			5
Staining sections for studying Neuro-histology	1			1

Procedures/Operations log (multiple pages)

(Under each procedure insert a number of rows equal to the no. required)

Procedure 1 **Obtaining specimens for studying cytology**			
Level of participation	**Date**	**Location**	**Signature of supervisor**
Procedure 2 **Obtaining specimens for studying general histology** :……			

Level of participation:

Observer

Assistant

Independent

Procedures/Operations log (multiple pages)

(Under each procedure insert a number of rows equal to the no. required)

Procedure 3 **Obtaining specimens for studying special histology**			
Level of participation	**Date**	**Location**	**Signature of supervisor**
Procedure 4 **Obtaining specimens for studying neurohistology**: ……			

Level of participation:

Observer

Assistant

Independent

Procedures/Operations log (multiple pages)

(Under each procedure insert a number of rows equal to the no. required)

Procedure5 **Processing specimens for studying cytology**			
Level of participation	**Date**	**Location**	**Signature of supervisor**
Procedure 6 **Processing specimens for studying general histology** :……			

Level of participation:

Observer

Assistant

Independent

Procedures/Operations log (multiple pages)

(Under each procedure insert a number of rows equal to the no. required)

Procedure 7 **Processing specimens for studying special histology**			
Level of participation	**Date**	**Location**	**Signature of supervisor**
Procedure 8 **Processing specimens for studying neurohistology**: ……			

Level of participation:

Observer

Assistant

Independent

Procedures/Operations log (multiple pages)

(Under each procedure insert a number of rows equal to the no. required)

Procedure 9 **Staining sections for studying cytology**			
Procedure 10 **Staining sections for studying general histology** :……			

Level of participation:

Observer

Assistant

Independent

Procedures/Operations log (multiple pages)

(Under each procedure insert a number of rows equal to the no. required)

Procedure 11 **Staining sections for studying special histology**			
Level of participation	**Date**	**Location**	**Signature of supervisor**
Procedure 12 **Staining sections for studying neurohistology**: ……			

Level of participation:

Observer

Assistant

Independent

Section III: Seminars

List of requirements:

1- Seminar attendance: 6 year

2- Seminar performance: 3/year

1- Attendance

Date	Topic	Supervisor's signature

Date	Topic	Supervisor's signature

2. Performance

Date	Topic	Supervisor's signature

Section IV:

Student teaching sections.

List of requirements:

Attendance: 6/ week **performance: 4/ week**

1- Attendance

Date	Section subject	Supervisor's signature

Date	Section subject	Supervisor's signature

2-Performance

Date	Section subject	Supervisor's signature

Date	Section subject	Supervisor's signature

Section V:

Scientific activities

(Conferences/workshops)

List of requirements

Conferences			
Total number required	**Attendance**	**Organization**	**Presentation**
3/ year	3		
Workshops			
Total number required	**Attendance**	**Organization**	**Presentation**
1/year	1		

Activity (Conference/Workshop	Role	Date	Supervisor's signature

Role:

-Attendant

-Organizer

-Presenter

Activity (Conference/Workshop	Role	Date	Supervisor's signature

Role:

-Attendant

-Organizer

-Presenter