جامعة بنها
كلية الطب البشرى
قسم ...الأنسجة وبيولوجيا الخليه

توصيف برنامج دكتوراة الهستولوجى وبيولوجيا الخليه
(عام 2013-2014-)

* معلومات أساسية : Basic information

١ ـ اسم البرنامج : **MD of … Histology and cell Biology**

٢ ـ طبيعة البرنامج : single (احادي)

٣- القسم/ الأقسام المسئولة عن البرنامج: -الأنسجةوبيولوجيا الخليه--

٤- تاريخ إقرار البرنامج فى مجلس القسم :5 / ٩ / ٢٠١٣

٥- تاريخ إقرار البرنامج فى مجلس الكلية: 15 / ٩ / ٢٠١٣

٦- مسؤل البرنامج: : ا.د/ أميمه كامل هلال **Prof. Dr**

٧- **المراجة الداخلية للبرنامج:.....Magdy Zaky …Mohamed Prof. Dr**

8- المراجعة الخارجية للبرنامج: ا.د/ هدى عنان (جامعة الزقازيق) **Prof. Dr**

* معلومات متخصصة: Professional information

١ ـ الأهداف العامة للبرنامج :

1- Program aims:

The overall aims of the program are:

1.a. Able to add new knowledge in histological fields. .

1.b. Efficient in carrying out the basis and advances in methodology of scientific research in histology

1.c. Showing a deep awareness with the ongoing problems , theories, and advanced science in histology .

1.d. Merging the specialized knowledge with other related knowledge with conclusion and developing the relationships in between. .

1.e. Applying the analytical course and critical appraisal of knowledge in histological specialty and its related fields.

1.f. Show orientation towards developing new methods, tools and techniques for professional practice both in teaching to undergraduates and inside histological laboratory.

1.g. Demonstrate proficiency in a wide range of specialized histological skills by using different methods in assessment of the biopsies e.g. immunohistochemistry, FNAC, immunoflourescent microscopy ……

1.h. Determination of the professional problems and creating solutions for them.

1.i. Use appropriate technological methods that are required for running of a histopathology laboratory considering health and safety regulations.

1.j. Demonstrate appropriate communication skills, good working relationships with colleagues and leading team works in different professional contexts.

1.k. Decision making through the avaliable information

1.l. Use available resources (e.g. microscopes, microtomes, tissue processors, special stains, pathology museum…….)wisely, develop them and work to find new ones.

1.m. Conduct an efficacious research according to the needs of the

Egyptian community in general and Kalybia governorate specially, and be prepared for continuous professional

1.n. Behave in a way which reflect his credibility, accountability and responsibility

1.o. Commit to continuous self-development and transfer his experience to colleagues.

1.p. Keeping continuous self development and transfer his experiences and knowledge to others by

٢ ـ المخرجات التعليمية المستهدفة من البرنامج :

2-Intended Learning Outcomes (ILOS):

٢.أ ـ المعرفة والفهم : **2.a. Knowledge and Understanding**

By the end of the program the graduate should be able to:

2.a.1. Describe the recent knowledge of histological structure of different body tissues and organs.

2.a.2. Illustrate the function of different cells, tissues and organs in relation to their microscopic and molecular structure.

2.a.3. Know the ethics in research regarding the human and the experimental animals

2.a.4. Recognize the fundamentals of quality in the professional practice in the field of histology

2.a.5. Discuss the value of early research in histology and cell biology and widening the area that benefit from this service.

2.b Intellectual Skills:

By the end of the MD program the graduate should be able to:

2.b.1. Interpret data effectively with other members of the histology department.

2.b.2. Relate problematic cases with given histological data.

2.b.3. Analyze medical research about specified medical problem (thesis) in large extended manner than the master degree.

2.b.4. Outline basis of performing medical research paper.

2.b.5. Assess risk in professional practices in histology.

2.b.6. Develop the habit of lifelong learning and improvement of performance in the field of histology.

2.b.7. Make a professional decision in various problems recent histological .

2.b.8. Demonst of creativity.

2.b.9. Conduct discussion based on facts and evidences.

2.c. Practical and professional Skills: **٢.ج . مهارات مهنية وعملية** :

On successful completion of the program, the graduate will be able to:

2.c.1. perform solutions used in micro technique and different stains' perfectly.

2.c.2. Perform all the methods of administration to lab animals.

2.c.3. Evaluate histochemical and immunohistochemical stains in normal and diseased tissues and variety of molecular pathology techniques.

2.c.4. Use new techniques as immunoflourescence microscopy to reach a more accurate diagnosis when indicated .

2.c.5. Teach and apply tissue prepration for E.M. Perfectly.

2.c.6. Use different methods in cytogenetics and diagnosis of different genetic disorders.

٢.د . مهارات عامة و منتقلة:

2.d. General and transferable skills:-

By the end of the program the candidate should be able to:

2.d.1. Communicate effectively by all types of effective communication

2.d.2. Use information technology to serve the development of professional practice.

2.d.3. Assess himself and identify his personal learning needs.

2.d.4. Use of different sources to obtain information and knowledge

2.d.5. Develop rules and indications for assessing the performance of others.

2.d.6. Work in a team, and team's leadership in various professional contexts

2.d.7. Manage time efficiently.

2.d.8. Learn himself continuously

3- Academic Standards ٣ ـ المعايير الأكاديمية للبرنامج:

- **Academic Reference Standards (ARS) of MD Program of HISTOLOGY AND Cell Biology,** approved in department council date 6 / 2013, and in faculty council no. date 6 / 2013. **(ملحق ١)**

4- Reference standards 4- العلامات المرجعية:

a) المعايير القياسية لبرامج الدراسات العليا (درجة الدكتوراه)الصادرة عن الهيئة القومية لجودة التعليم والإعتماد (مارس ٢٠٠٩)

Academic reference standards (ARS) , MD Program (March 2009)

, which were issued by the National Authority for Quality Assurance & Accreditation of education NAQAAE **(ملحق ٢)**

(5): Program structure and contents 5 - هيكل ومكونات البرنامج :

أ - مدة البرنامج : 120 weeks

Two and half years to pass M.D. degree:

- **1st part:** - One Semester (6 months).
- **2nd part:** - Three Semesters (1.5 years).
- **Thesis:** - Two years

ب - هيكل البرنامج:

Program structure

- **Total hours of program 64 credit hours**
- **Theoretical ……32…… تكتب عدد الساعات النظري**
- **Practical ……32……..تكتب عدد الساعات العملي والاكلينيكي**
- compulsory -----إلزامي
- انتقائي selective ----
- elective---اختياري

ج- مستويات ومقررات البرنامج:

الزامي compulsory

البند	المقررات	الكود	الساعات المعتمدة
متطلبات	الجامعة والكلية		٦ ساعة
الجزء الثانى	الهستولوجي ا- مقدمة عن الهستولوجي وتشمل التركيب الميكروسكوبي للخلايا والأنسجة - طرق تحضير العينات لفحصها بالميكروسكوب الضوئي والإلكتروني	HIST 701	٩ ساعه
	ب- بيولوجيا الخلية وتشمل: - التركيب المجهري للنواة والسيتوبلازم - طرق إنقسام الخلايا الوراثة مع نبذة عن الأمراض الوراثية		
	ج- دراسة أنسجة الجسم المختلفة: - النسيج الطلائي، النسيج الضام، الدم، نخاع العظم، الجهاز اللمفاوي وجهاز المناعة، الغضاريف والاربطة والأوتار، العظام ، المفاصل. النسيج العصبي، العضلات المختلفة		
كراسة النشطة	حضور المؤتمرات ، حضور مناقشة ١٠ رسائل ماجستير ودكتوراه ، الإشراف بصفة دورية علي Student Seminar أي نشاط علمي متميز مع الزملاء أو الطلاب بعد تقييمه من أساتذة القسم حضور ورش عمل علمية وتدريبية خارج القسم		٥ ساعات

الجزءالاول	الهستولوجي و يشمل:	HIST 702	12 ساعة
	زرع الأنسجة		
	الميكروسكوب الإلكتروني		
	تفاصيل الجهاز العصبي		
	البيولوجيا الجزيئيه		
	علم الوراثة البشرية		
	علم الأجنة		
رسالة	جزء مرجعي وبحثي وجزء عملي وتطبيقي.		٣٥ ساعة
الاجمالى			٦٤ ساعة

ج: خطة التدريس: Teaching plan

First part: 6 MONTHES

a- Elective courses:

Course Title	Course Code	NO. of hours per week			Total teaching hours/ One Semester
		Theoretical	Laboratory /practical	Total	
Histology	HIST 702	6	9	15	225
Total:		6	9	15	225 hours

b- ELECTIVE COURSES: none

Second part: 1.5 YEAR

a- Compulsory courses:

Course Title	Course Code	NO. of hours per week			Total teaching hours weeks/ Three Semesters
		Theoretical	Laboratory /practical	Total	
Histology	HIST 701	8	12	20	900
Total:		8	12	20	900

b- Elective courses: none

Teaching methods: **د : طرق التدريس:**

1. Small group discussions.
2. Problem solving.
3. Self-learning.
4. Practical & clinical classes.

Method	Evidence	ILOs
Small group discussions	**SEMINARS LECTUERS**	**2.a.1.---------- 2.a.5 2.b.1. ----------2.b.3 2.d.1. --------- 2.d.7**
Problem solving	CASE STUDY	**2.a.1.---------- 2.a.5 2.b.1. ----------2.b.3**
Self-learning	RESEARCHES PRESENTATIONS	**2.a.1.---------- 2.a.5 2.b.1. ----------2.b.3 2.d.1. --------- 2.d.7**
Practical classes	SLIDES	**2.c.1.---------- 2.c.6**

٧ ـ متطلبات الإلتحاق بالبرنامج Program admission requirements

مادة (٢٣) : يشترط لقيد الطالب لدرجة الدكتوراه فى الطب أو الجراحة أو العلوم الطبية الأساسية أن يكون حاصلا على درجة الماجستير فى مادة التخصص بتقدير جيد على الأقل من إحدى جامعات ج ٠ م ٠ ع أو على درجة معادلة لها من معهد علمى أخر معترف به من الجامعة ٠

☒ **مدة الدراسة لنيل الدكتوراه سنتان ونصف موزعة كا لاتى :٠**

- **جزء أول :** علوم أساسية ٠ فصل دراسى لمدة ستة شهور (٦ ساعات معتمدة) ومن يرسب يعيد مادة الرسوب فقط ٠
- **الجزء الثانى :** ثلاث فصول دراسية لمدة سنة ونصف (٣٩) ساعة معتمدة يستوفى خلالها الطالب الساعات المعتمدة ثم يسمح له بالتقدم لامتحان التحريرى وإذا اجتاز الامتحان التحريرى بنجاح يحق له التقدم الى الامتحان الشفهى والعملى والإكلينيكي خلال شهر من تاريخ الامتحان التحريرى ٠
- **رسالة (١٥ ساعة معتمدة)**

تبدأ الدراسة عند بداية التسجيل تنتهى بامتحان شامل فى نهاية كل أربع فصول دراسية بعد اجتياز الطالب امتحانات الجزء الأول بنجاح يسمح له بتسجيل رسالة لمدة أربعة فصول دراسية تبدأ عند بداية الفصل الدراسى الثانى وتناقش بعد مرور عامين على الأقل من تاريخ تسجيل الرسالة على أن تكون المناقشة بعد ستة اشهر على الأقل مع اجتياز الامتحان التحريرى والإكلينيكية والشفهى (الامتحان الشامل **يمنح الطالب الدرجة بعد مناقشة الرسالة واجتياز الامتحان الشامل ٠**

- يكون التقدم للقيد لدرجة الدكتوراه مر تين فى السنة خلال شهرى مارس وأكتوبر من كل عام ٠

8 ـ القواعد المنظمة لإستكمال البرنامج :

مادة (٢٤) : يشترط فى الطالب لنيل درجة الدكتوراه فى الطب أو الجراحة أو العلوم الطبية الأساسية ما يلى :

- حضور المقررات الدراسية بصفة مرضية طبقا للساعات المعتمدة ٠
- أن يقوم ببحث فى موضوع تقره الجامعة بعد موافقة مجلس الكلية والقسم لمدة سنتان على الأقل ٠
- أن يتقدم بنتائج البحث فى رسالة تقبلها لجنة الحكم بعد مناقشة علنية للرسالة ٠
- اجتياز الطالب ثلاث دورات فى الحاسب الآلى (دورة فى مقدمة الحاسب الألى – دورة تدريبية " متوسطة " – دورة فى تطبيقات الحاسب الألى) ٠ وذلك قبل مناقشة الرسالة ٠
- اجتياز الطالب اختبار التويفل بمستوى لا يقل عن ٥٠٠ وحدة وذلك قبل مناقشة الرسالة ٠
- أن يجتاز بنجاح الاختبارات التحريرية والإكلينيكية والشفهية المقررة وفقا لما هو مبين باللائحة ٠

مادة (٢٥) : على الطالب أن يقيد اسمه للامتحان قبل موعده بشهر على الأقل ٠

مادة (٢٦) : يشترط لنجاح الطالب فى امتحان الدكتوراه الحصول على الحد الأدنى للنجاح فى جميع الاختبارات المقررة وفى كل جزء من أجزاءها على حدة ذلك بأخذ المتوسط لتقديرات أعضاء اللجنة اذا رسب الطالب فى أى مقرر من المقررات بعد الامتحان فى جميع المقررات ٠

مادة (٢٧) : يعقد الامتحان التحريرى لدرجة الدكتوراه فى شهرى نوفمبر ومايو من كل عام – لمن يجتاز الامتحان التحريرى فى نفس الدور يتقدم الامتحان الشفهى والاكلينكى والعملى

مادة (٢٨) : لا يجوز للطالب أن يبقى مقيدا لدرجة الدكتوراه لأكثر من أربع سنوات دون أن يتقدم لمناقشة الرسالة ويجوز لمجلس الكلية أن يعطى الطالب مهلة لمدة سنتين فى حالة قبول العذر ٠

مادة (٢٩) : تضاف درجات التحريرى ووصف الحالة لبعضها ويعتبر النجاح والرسوب فى المجموع الكلى للتحريرى (٦٠% على الاقل من الدرجة النهائية للتحريرى) ومن ينجح فى الامتحان التحريرى يصرح له بدخول باقى الامتحانات الإكلينيكية والشفوية والعملية وعدد الرسوب يعيد الطالب الامتحان الشفوى والاكلينيكى ٠

لا يحق للطالب التقدم للامتحان التحريرى أكثر من أربع مرات ٠

مادة (٣٠) : تبين فى شهادة الدكتوراة موضوع الرسالة والمادة أو المواد الاختيارية ٠

مادة (٣١) : تبين الجداول فى الباب الخامس المقررات الدراسية التى تدرس لنيل درجة الدكتوراه طبقا للساعات المعتمدة الاختبارات التحريرية والإكلينيكية والشفوية ٠

٩ –طرق وقواعد تقييم الملتحقين بالبرنامج - Students Assessment Methods

9- Students Assessment methods:

م	الوسيلة	مخرجات التعلم المستهدفة
	Written examination	To assess knowledge & intellectual skills: **2.a.1…….2.a.5., 2.b.1……2.b.3.**
	Oral examination	To assess knowledge, intellectual skills & General & transferable skills **2.a.1…….2.a5., 2.b.1……2.b3., 2.d.1…..2.d.7.**
	Practical examination	To assess Practical & Clinical skills: **2.c.1……..2.c.6.**
	MCQ examination	To assess knowledge & intellectual skills: **2.a.1…….2.a5., 2.b.1……2.b.3.**

Final exam:

First part

المقرر	الاختبار	الدرجة			إجمالي
		تحريري	شفهي	عملي+logbook	
HIST (706-712)	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي+عملي	١٠٠	١٠٠	١٠٠	٣٠٠

Second part

لمقرر	الاختبار	الدرجة			إجمالي
		تحريري	شفهي	عملي+logbook	
HIST (702-704)	اختبار تحريري مدته ثلاث ساعات + اختبار شفهي+عملي	200	١٠٠	200	500

١٠ ـ طرق تقويم البرنامج: Evaluation of Program:

Evaluator	Tools	sample
Internal evaluator (s) مقييم داخلى	Focus group discussion Meetings	Report ٢-١
External Evaluator (s) مقييم خارجى	Reviewing according to external evaluator checklist report of NAQAA.	1-2 Report
Senior student (s) طلاب السنة النهائية	مقابلات , استبيان	جميع الطلبة
Alumni الخريجون	مقابلات ،استبيان	عينة لا تقل عن ٥٠% من طلبة أخر ٣ دفعات
Stakeholder (s) أصحاب العمل	مقابلات ،استبيان	عينة ممثلة لجميع جهات العمل
Others طرق أخرى	none	

١١: استراتيجيات التعليم و التعلم علي مستوي البرنامج:

١. استراتيجية التعلم النشط. **Active learning**

٢. استراتيجية التعليم المبنى على النتائج. **Outcome-based learning**

٣. استراتيجية التعليم المبنى على حل المشكلات. **Problem-based learning**

المسئول عن البرنامج : التوقيع التاريخ : / /

Program Coordinator:

Name Dr ..... Signature.....Date .....

توصيف المقررات

Program courses

First part
1-Tissue culture
2-Electron Microscopes
3- Molicular Biology
4-Cytogenetics
5-Embiryology
6-Nervous system
Second part
1-General histology
2- Special Histology

توصيف المقررات

Program courses

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*
(Code): HIST 706
Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of M.D.1st part Immunology & Organ Transplant program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/9/2014**

A) Basic Information:

- **Allocated marks:** 300 marks
- **Course duration:** 24 weeks of teaching
- **Teaching hours:** 15_hours/week = 225 total teaching hours

Method	Hours / week	Total hours
1- Small group teaching / tutorials	6h /week	90 h
2- Practical	9h /week	135 h
Total	15h /week	225 h

B) Professional Information:

1- *Overall Aim of the Course:*

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:

1. Scientific knowledge essential for practice of Immunology &Organ Transplant
according to the international standards.
2. Skills necessary for proper practice in the field of Immunology &Organ Transplant
including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems solving.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2- Intended Learning Outcomes (ILOs):

a) Knowledge and Understanding:

By the end of the course the student should be able to:

a1. List the different methods for immunohistochemical tissue examination.
a2. Define the hazardous effects of common chemicals used and the precautions
to avoid or minimize these hazards.
a3. Enumerate the cellular mechanisms of immunology.

b) Intellectual Skills:

20

By the end of the course the student should have the ability to:

b1. Identify and analyze the contents any pathological slides related to immune reactions.
b2. Interpret in a professional manner a pathology report.
b3. Evaluate and interpret any morphological abnormalities in the examined slides by light microscopes.
b4. Evaluate evidence based scientific discussions in at least ten seminars.

c) Professional and Practical Skills:

By the end of the course the student should have the ability to:

c1. Prepare solutions used for immunohistochemistry perfectly and independently.
c2. Prepare frozen sections perfectly and independently.
c3. Perform the steps of immunohistochemistery perfectly and independently.

c4. Examine and photograph experimental slides by light microscope perfectly
and independently.

d) General and Transferable Skills:

By the end of the course the student should have the ability to:
d1. Communicate effectively with students, colleagues and professors.
d2. Assess his performance and improve it continuously.
d3. Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.
d4. Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents:

Topic	No. of hours	Lecture	Practical
1. Inflammation & repair. .	**4**	**4**	
2. Degeneration.	**4**	**4**	
3. Cell death & necrosis	**4**	**4**	
4. Basic immunology	**4**	**4**	
5.Immunopathology	**4**	**4**	
6. Organ transplant	**8**	**8**	
7. Transplant rejection	**4**	**4**	
8. Techniques & immunohistochemistry	**11**	**11**	
9. Cell culture.	**4**	**4**	
10. Intracellular accumulation	**4**	**4**	
11. Extracellular deposits	**4**	**4**	
12. Cellular growth disorders	**5**	**5**	

4- <u>Teaching and learning methods</u>:

METHODS USED:

4.1.Lectures
4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.
4.3.Tutorials.
4.4.Practical classes.
4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

***5- Students Assessment methods*:**

5-A) ATTENDANCE CRITERIA: Faculty bylaws

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) Weighting System:

Examination	**Marks allocated**	**% of Total Marks**
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	**Description**
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions
6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia **(2009)**.

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6.2. <u>Essential books (text books)</u>:

- **Passarge, E. (2007):** Color atlas of genetics, 3rd ed. Thieme Stuttgart. New York.
- **Turnpenny, P. and Ellard, S. (2007):** Emery's elements of medical genetics, 12th ed. Elsevier Saunders, Philadelphia.

6.3. <u>Periodicals, Web sites, etc</u>:

6.4.1.http://www.medscape.com.
6.4.2.http://www.pubmed.com.
6.4.3.http://master.emedicine.com/maint/cme.asp.
6.4.4.http://www.science direct.com.

7- <u>Facilities required for teaching and learning</u>:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal
Date: 2014 _ 2015

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*
(Code): HIST 707
Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of M.D.1st part Tissue Culture program: 2013_ 2014.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/9/2014**

A) Basic Information:

- **Allocated marks:** 300 marks
- **Course duration:** 24 weeks of teaching
- **Teaching hours:** 15_hours/week = 225 total teaching hours

Method	Hours / week	Total hours
1- Small group teaching / tutorials	6h /week	90 h
2- Practical	9h /week	135 h
Total	15h /week	225 h

B) Professional Information:

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:
1. Scientific knowledge essential for practice of Tissue Culture according to the
international standards.
2. Skills necessary for proper practice in the field of Tissue Culture

including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems solving.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Course (ILOs)

a) Knowledge and Understanding:

By the end of this program, the student is expected to
a1. List the histological structure of the cell.
a2. Describe the methods of cell division and its abnormalities.
a3. List the different methods for tissue culture examination.
a4. Define the molecular structure of the nucleus and the cytoplasmic organelles.
29
a5. Define the hazardous effects of common chemicals used and the precautions
to avoid or minimize these hazards.

b) Intellectual Skills

By the end of this course the student should be able to
b1. Analyze and interpret research data in the field of tissue culture.
b2. Evaluate new solutions to many kinds of cell culture problems.
b3. Evaluate the general and specific histological stains for microdetection of the cytoplasmic content.
b4. choose experimental studies in tissue culture.
b5. Evaluate evidence based scientific discussions in at least ten seminars.
b7. Analyze and criticize scientific research papers.

c) Professional and Practical Skills

By the end of this course the student should be able to
c1. Prepare solutions used for culture media perfectly and independently.
c2. Perform all the methods of administration to the lab animals.
c3. Perform the steps of tissue culture perfectly and independently.
c4. Perform preparations for tissue culture perfectly and independently.

d) General and Transferable Skills

By the end of this course the student should be able to
d1. Communicate effectively with students, colleagues and professors.
d2. Assess his performance and improve it continuously.

d3. Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.
d4. Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents:

Topic	No. of hours	Lecture	Practical
1.Cellular structure.	**5**	**5**	
2.Introduction: Background and advantages of cell and tissue culture, and biology of cultured cells	**5**	**5**	
3. Experimental animal handling	**5**	**5**	
4. Design and layout for a dedicated cell culture lab	**5**	**5**	
5. Aseptic technique, culture vessels and laboratory safety	**4**	**4**	
6. Cell culture media and requirements	**4**	**4**	
7. Serum free media	**4**	**4**	
8. Primary Cell culture	**4**	**4**	
9. . sub culture and Cell lines	**4**	**4**	

10. Cell separation and characterization	**4**	**4**	
11. Cloning and Selection	**4**	**4**	
12. Cell Differentiation	**4**	**4**	
13.Transformation, immortalization, contamination and cryopreservation	**4**	**4**	
14. Cell Quantitation	**4**	**4**	

4- Teaching and learning methods:

METHODS USED:

4.1.Lectures

4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.

4.3.Tutorials.

4.4.Practical classes.

4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

5- Students Assessment methods:

5-A) <u>ATTENDANCE CRITERIA</u>: Faculty bylaws

5-B) <u>Assessment TOOLS:</u>

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) <u>TIME SCHEDULE</u>:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) <u>Weighting System:</u>

Examination	**Marks allocated**	**% of Total Marks**
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	Description
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions
6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia **(2009)**.
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6.2. Essential books (text books):

- **Passarge, E. (2007):** Color atlas of genetics, 3rd ed. Thieme Stuttgart. New York.
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7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal
Date: 2014 _ 2015

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*
(Code): HIST 708
Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of M.D.1st part Electron Microscopy program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/9/2014**

A) Basic Information:

- **Allocated marks:** 300 marks
- **Course duration:** 24 weeks of teaching
- **Teaching hours:** 15_hours/week = 225 total teaching hours

Method	Hours / week	Total hours
1- Small group teaching / tutorials	6h /week	90 h
2- Practical	9h /week	135 h
Total	15h /week	225 h

B) Professional Information:

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:
1. Scientific knowledge essential for practice of Electron Microscopy according
to the international standards.
2. Skills necessary for proper practice in the field of Electron Microscopy

including diagnostic, problem solving and decision making skills.
3. Ethical principles related to the practice in this specialty.
4. Active participation in community needs assessment and problems solving.
5. Maintenance of learning abilities necessary for continuous medical education.
6. Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of this course the student should be able to
a1. Mention the recent knowledge of the ultrastrucure of the different body tissues and organs.
a2. Illustrate the function of the different cells and organs in relation to their microscopic ultrastructure.
a3. Define the hazardous effects of common chemicals used and the precautions to minimize these hazards.
a4. List the advanced types, uses and different techniques of electron microscopes.

b) Intellectual Skills

By the end of this course the student should be able to
b1. Analyze and interpret research data in the field of Histology.
b2. evaluate and interpret any morphological abnormalities in the examined tissues by electron microscopes.
b3.
b4. Present evidence based scientific discussions in at least ten seminars.

. c) Professional and Practical Skills:

By the end of this course the student should be able to
c1. Perform all the methods of administration to the lab animals.
c2. Perform tissue preparations for E.M. perfectly and independently.
c3. Examine and photograph experimental specimenss by electron microscope perfectly and independently.
c4 conduct tissue preparation for EM examinations.

d) General and Transferable Skills:

By the end of this course the student should be able to
d1. Communicate effectively with students, colleagues and professors.
d2. Use the information technology in self learning, teaching and research.
d3. Assess his performance and improve it continuously.
d4. Use the web sites, medical journals, personal communications ,digital

libraries to gain knowledge.
d5. Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents:

Topic	No. of hours	Lecture	Practical
1. History of microscopy.	**5**	**5**	
2. Introduction to Electron Microscopy	**5**	**5**	
3. Electrons in electric and magnetic fields, electron lenses	**5**	**5**	
4. lab safety in using E M	**5**	**5**	
5. Types of Electron Microscope	**4**	**4**	
6. Components of a transmission electron microscope	**4**	**4**	
7. Specimen Fixation	**4**	**4**	
8.Fixation/Dehydration/Embedding	**4**	**4**	
9. Specimen Coating for SEM	**4**	**4**	
10. Digital Image Processing	**4**	**4**	
11. Glass Knife & Block Trimming	**4**	**4**	
12. Sectioning	**4**	**4**	
13. Interpretation of the electron microscopic image			
14. Application of electron microscope to research study			
15.Advances in Electron Microscope	**4**	**4**	

4- Teaching and learning methods:

METHODS USED:

4.1.Lectures
4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.
4.3.Tutorials.
4.4.Practical classes.
4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / ____week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

***5- Students Assessment methods*:**

5-A) ATTENDANCE CRITERIA: Faculty bylaws

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	Description
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions
6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia **(2009)**.
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6.2. Essential books (text books):

- **Passarge, E. (2007):** Color atlas of genetics, 3rd ed. Thieme Stuttgart. New York.
- **Turnpenny, P. and Ellard, S. (2007):** Emery's elements of medical genetics, 12th ed. Elsevier Saunders, Philadelphia.

6.3. <u>Periodicals, Web sites, etc</u>:

6.4.1.http://www.medscape.com.
6.4.2.http://www.pubmed.com.
6.4.3.http://master.emedicine.com/maint/cme.asp.
6.4.4.http://www.science direct.com.

7- <u>Facilities required for teaching and learning</u>:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal
Date: 2014 _ 2015

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*
(Code): HIST 709
Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of M.D.1st part nervous system program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/9/2014**

A) Basic Information:

- **Allocated marks:** 300 marks
- **Course duration:** 24 weeks of teaching
- **Teaching hours:** 15_hours/week = 225 total teaching hours

Method	Hours / week	Total hours
1- Small group teaching / tutorials	6h /week	90 h
2- Practical	9h /week	135 h
Total	15h /week	225 h

B) Professional Information:

1- *Overall Aim of the Course:*

1.1. Advanced scientific knowledge essential to practice Histology & Cell Biology dealing with tissue processing & imaging procedures by light &electron microcopies.

1.2. Advanced scientific knowledge essential l for establishing & maintaining good researchers.

1.3. Advanced scientific knowledge essential for following the rules of medical ethics.

1.4. Diagnostic, problem solving and decision making as well as communication skills necessary for proper evaluation and management of health problems &researches.

1.5. Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.

1.6. Life long learning competencies necessary for continuous professional development.

1.7. Research education as related to medical practice &more advanced scientific researches.

1.8. Advanced administrative skills necessary for delivery of research service.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

2.a.1. Describe Structure(LM&EM) of neuron cell body and Compare between axon and dendrites.

2.a.2.Outline types of nerve cells.

2.a.3. Describe types , structure and organization of nerve fibers.

2.a.4. Describe mylination of CNS&PNS.

2.a.5. Describe types &structure of nerve ganglia.

2.a.6. Describe structure and types of synapses.

2.a. 7. Describe degeneration and regeneration of neurons.

2.a.8. Define stains used to study nervous tissue .

2.a.9. Describe Neuroglia structure and their functions.

2.a.10. Describe Types and structure of nerve endings .

2.a. 11.disuss ation potential and nerve Condution .

2.a.12. Outlines major clinical applications of nervous tissue diseases.
2.a.145. Describe meninges and CSF.

2.a.13. Describe various levels of sections in spinal cord.

2.a.14.Describe pathways of ascending and descending tracts.

2.a.15.Describe the levels of Brain stem.

2.a.16.Discuss the histological structures and function of cerebrum.

2.a.17.Discuss the histological structures and function of cerebellum.

2.a.18Describe the development of the CNS.

2.a.19. Describe meninges and CSF.
2.a.20. Outline the clinical correlations of the Central nervous system.

.b.Intellectual skills:

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

2.b.1. Combine the technical and investigational database to be proficient in histological problem solving.
2.b.2. Generate a list of initial technical hypotheses for each problem.
2.b.3 Analyzes all sources of information to Interpret and evaluate the tissue samples

2.c. Professional and practical skills:

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

2.c.1. Adopt an empathic and holistic approach to the researches and their problems.

2.c.2 Demonstrate Respect for right researches' and involve them and /or their in management decisions.

2.c.3 Demonstrate the more recent in researches in stem cells.

2.c.4. Respect the role and the contributions of other health care professionals regardless their degrees or rank (top management, subordinate or colleague)..

2.c.5. Complies with the requirements of the national code of ethics issued by the Egyptian Medical Syndicate.

2.c.6. Conduct counseling sessions for more advances in researches.

2.c.7. Reflect critically on their own performance and that of others, to recognize personal limitations regarding skills and knowledge to refer their student's facility at the appropriate stage.

d) General and Transferable Skills:

By the end of this course the student should be able to

d1. Communicate effectively with students, colleagues and professors.

d2. Use the information technology in self learning, teaching and research.

d3. Assess his performance and improve it continuously.

d4. Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.

d5. Administer scientific activities as seminars, journal clubs ,scientific meetings or conferences.

3- Contents:

Topic	No. of hours	Lecture	Practical
Nervous tissue 1-Structure of neuron (LM&EM) cell body, axon, ,dendrites 2- types of nerve cells 3-types and structure of nerve fibers 4-organization of nerve fibers mylination of CNS&PNS 6-nerve ganglia (types &structure). 7-synapses(structure and types) 8-degeneration and regeneration of neurons 9-stain used to study nervous tissue including those of degeneration 10-Neuroglia structure and their functions 11-Types and structure of nerve endings (receptors and effector)			
CNS 1- Anatomical consideration of CNS 2- meninges 3- spinal cord 4- medulla oblongata 5- pons 6- mid brain 7- cerebellum 8- dinencephalon 9- cerebral cortex			

4- <u>Teaching and learning methods</u>:

<u>METHODS USED:</u>

4.1.Lectures

4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.

4.3.Tutorials.

4.4.Practical classes.

4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / ____week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

***5- Students Assessment methods*:**

5-A) ATTENDANCE CRITERIA: Faculty bylaws

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	Description
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions
6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia **(2009)**.
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6.2. Essential books (text books):

- **Passarge, E. (2007):** Color atlas of genetics, 3rd ed. Thieme Stuttgart. New York.
- **Turnpenny, P. and Ellard, S. (2007):** Emery's elements of medical genetics, 12th ed. Elsevier Saunders, Philadelphia.

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7- <u>Facilities required for teaching and learning</u>:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal
Date: 2014 _ 2015

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*
(Code): HIST 710
Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of M.D.1st part Molecular Biology program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/9/2014**

A) Basic Information:

- **Allocated marks:** 300 marks
- **Course duration:** 24 weeks of teaching
- **Teaching hours:** 15_hours/week = 225 total teaching hours

Method	Hours / week	Total hours
1- Small group teaching / tutorials	6h /week	90 h
2- Practical	9h /week	135 h
Total	15h /week	225 h

B) Professional Information:

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:
1- Scientific knowledge essential for practice of Molecular Biology according to
the international standards.

2- Skills necessary for proper practice in the field of Molecular Biology including diagnostic, problem solving and decision making skills.
3- Ethical principles related to the practice in this specialty.
4- Active participation in community needs assessment and problems solving.
5- Maintenance of learning abilities necessary for continuous medical education.
6- Maintenance of research interest and abilities.

2. Intended Learning Outcomes of Courses (ILOs)

a) Knowledge and understanding:

By the end of this course the student should be able to
37
a1. Illustrate the function of the different cells and organs in relation to their microscopic and molecular structure .
a2. Define the molecular structure of the nucleus and the cytoplasmic organelles.
a3. Define the hazardous effects of common chemicals used and the precautions
to avoid or minimize these hazards.

b) Intellectual Skills

By the end of this course the student should be able to
b1. Interpret the medical importance of the histological structure at molecular
level.
b2. Evaluate the general and specific histological stains for micro detection of the cytoplasmic content.
b3. Risk assessment and management in dealing with lab animals and conducting tissue preparation.
b4. Present evidence based scientific discussions in at least ten seminars.
b5. Analyze and criticize scientific research papers in at least ten journal clubs

c) Professional and Practical Skills:

By the end of this course the student should be able to
c1. Perform all the methods of administration to the lab animals.
c2. Apply molecular biology study in his research work.

d) General and Transferable Skills:

By the end of this course the student should be able to
d1. Communicate effectively with students, colleagues and professors.
d2. Assess his performance and improve it continuously.

d3. Use the web sites, medical journals, personal communications ,digital libraries to gain knowledge.
d4. Administer scientific activities as seminars, journal clubs ,scientific meetings
or conferences.

3- Contents:

Topic	No. of hours	Lecture	Practical
1. Molecular aspects of the cell.			
2. Genes and genetic information			
3. basic techniques in molecular biology			
4. restriction enzymes			
5. molecular hybridization			
6. molecular cloning			
7. polymerase chain reaction (PCR)			
8. DNA sequencing			
9. Gene Therapy			
10. Apoptosis			
11. Transport across Cell Membranes			
12. Cell-to-Cell Signaling			

4- Teaching and learning methods:

METHODS USED:

4.1.Lectures
4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.
4.3.Tutorials.
4.4.Practical classes.
4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

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***5- Students Assessment methods*:**

5-A) <u>ATTENDANCE CRITERIA</u>: Faculty bylaws

5-B) <u>Assessment TOOLS:</u>

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) <u>TIME SCHEDULE</u>:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) <u>Weighting System:</u>

Examination	Marks allocated	% of Total Marks
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6- Assignments & other activities	____	_____
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5-E) Examinassions description:

Examination	Description
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6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia **(2009)**.
-

6.2. Essential books (text books):

- **Passarge, E. (2007):** Color atlas of genetics, 3rd ed. Thieme Stuttgart. New York.
- **Turnpenny, P. and Ellard, S. (2007):** Emery's elements of medical genetics, 12th ed. Elsevier Saunders, Philadelphia.

6.3. Periodicals, Web sites, etc:

6.4.1.http://www.medscape.com.
6.4.2.http://www.pubmed.com.
6.4.3.http://master.emedicine.com/maint/cme.asp.
6.4.4.http://www.science direct.com.

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal
Date: 2014 _ 2015

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*
(Code): HIST 711
Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of M.D.1st part Genetics program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/9/2014**

A) Basic Information:

- **Allocated marks:** 300 marks
- **Course duration:** 24 weeks of teaching
- **Teaching hours:** 15_hours/week = 225 total teaching hours

Method	Hours / week	Total hours
1- Small group teaching / tutorials	6h /week	90 h
2- Practical	9h /week	135 h
Total	15h /week	225 h

B) Professional Information:

1- Overall Aims of Course

The aim of this program is to provide the postgraduate student with the medical knowledge and skills essential for the practice of specialty and necessary to gain:
1- Scientific knowledge essential for practice of Genetics **according** to the international standards.
2- Skills necessary for proper practice in the field of Genetics **including** diagnostic,
problem solving and decision making skills.
3- Ethical principles related to the practice in this specialty.

4- Active participation in community needs assessment and problems solving.
5- Maintenance of learning abilities necessary for continuous medical education.
6- Maintenance of research interest and abilities.

2- Intended Learning Outcomes of Courses (ILOs)

a) **Knowledge and understanding:**

By the end of the course the student should be able to:
a1. Illustrate the function of the different cells and organs in relation to their chromosomal, genetic and molecular structure .
a2. Describe the methods of cell division and its abnormalities.
a3. Define the hazardous effects of common chemicals used research of medical genetics and the precautions to minimize these hazards.

b) Intellectual Skills

By the end of the course the student should be able to:
b1. Apply appropriate research strategies for use in genetics.
b2. Advocate appropriately in the research design in genetics.
b3. Conduct experimental studies in the field of Histology.
b5. Administrate evidence based scientific discussions in at least ten seminars.
b6. Analyze and criticize scientific research papers.

c) Professional and Practical Skills:

By the end of the course the student should be able to:
c1. Prepare solutions used for genetic research perfectly.
c2. Perform all the methods of administration to the lab animals and genetic lab.
c3. Apply genetics study in his research work.
c4conducting tissue preparation for research in genetics.

d) General and Transferable Skills:

By the end of the course the student should be able to:
d1. Communicate effectively with students, colleagues and professors.
d2. Assess his performance and improve it continuously.
d3. Use the web sites, medical journals, personal communications, digital libraries to gain knowledge.
d4. Work coherently and successfully as a part of a team or as a leader.
d5. Administer scientific activities as seminars, journal clubs, scientific meetings
or conferences.

3- Contents:

Topic	No. of hours	Lecture	Practical
1. Chromosomal basis of heredity.			
2. The normal chromosome			
3. Cell division			
4. Mitosis			
5. Meiosis			
6. Cell cycle			
7. Chromosomal aberrations Numerical aberrations Structural aberrations			
8. Genetic basis of heredity			
9. Structure and function of genes			
10. Genetic code			
11. DNA DNA replication DNA sequencing DNA microarray Recombinant DNA technology			
12. RNA Gene Expression (protein biossynthesis). Transcription Translation Post transcriptional process. Regulation of gene expression			
Mutations			

Genetic basis of some human diseases			
PCR			
Gene mapping.			
Laboratory biosafty and experimental animal handling			

4- Teaching and learning methods:

METHODS USED:

4.1.Lectures

4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.

4.3.Tutorials.

4.4.Practical classes.

4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / ____week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

***5- Students Assessment methods*:**

5-A) ATTENDANCE CRITERIA: Faculty bylaws

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	Description
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions

6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia **(2009)**.
-

6.2. Essential books (text books):

- **Passarge, E. (2007):** Color atlas of genetics, 3rd ed. Thieme Stuttgart. New York.
- **Turnpenny, P. and Ellard, S. (2007):** Emery's elements of medical genetics, 12th ed. Elsevier Saunders, Philadelphia.

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6.4.4.http://www.science direct.com.

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal
Date: 2014 _ 2015

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*

(Code): HIST 702

Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of 2nd part M.D. Cytology and microtechnique program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/8/2014**

A) Basic Information:

- **Allocated marks:** 500 marks
- **Course duration:** 72 weeks of teaching
- **Teaching hours:** 20_hours/week = 900 total teaching hours

	Hours / week	Total hours
1-Small group teaching / tutorials	8 h/week	360 h
2- Practical	12h/week	540 h
Total	20 h/week	900 h

B) Professional Information:

1- *Overall Aim of the Course:*

1.1. Advanced scientific knowledge essential to practice Histology & Cell Biology dealing with tissue processing & imaging procedures by light &electron microcopies.

1.2. Advanced scientific knowledge essential l for establishing & maintaining good researchers.

1.3. Advanced scientific knowledge essential for following the rules of medical ethics.

1.4. Diagnostic, problem solving and decision making as well as communication skills necessary for proper evaluation and management of health problems &researches.

1.5. Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.

1.6. Life long learning competencies necessary for continuous professional development.

1.7. Research education as related to medical practice &more advanced scientific researches.

1.8. Advanced administrative skills necessary for delivery of research service.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

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

2.a.1. Describe the methods of preparation of microscopic sections .

2.a.2. Describe types of microscopes.

2.a.3. Describe préparation of sections for Light microscope &Electron microscope.

2.a.4. Describe Enzyme Histochemistry and Immunocytochemistry .

2.a.5.Describe Hybridization Techniques and Autoradiography .

2.a.6.Discuss Frozen Sections .

2.a.7.Discuss Feulgen Microspectrophotometry .

2.a.8. Discuss Monoclonal Antibodies .

2.a.9.Describe structure and function of cell membrane.

2.a.10.Discuss membrane trafficking .

2.a.11. Discuss cell signaling and receptors.

2.a.12.Discuss structure, function and abnormalities of cell organelles (rough endoplasmic reticulum , smooth endoplasmic reticulum,Golgi apparatus, mitochondria, lysosomes, peroxisomes, proteosomes and annulate lamellae , ribosomes).

2.a.13. Discuss structure, function and abnormalities of microtubules ,centrioles, cilia , flagella *and* microfilaments.

2.a.14.Outline lysosomal storage diseases.

2.a15.Describe cell inclusions.

2.a.16.Describe structure ,abnormalities and function of nucleus.

2.b.Intellectual skills:

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

2.b.1. Combine the technical and investigational database to be proficient in histological problem solving.

2.b.2. Generate a list of initial technical hypotheses for each problem.

2.b.3 Analyzes all sources of information to Interpret and evaluate the tissue samples

2.c. Professional and practical skills:

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

2.c.1. Adopt an empathic and holistic approach to the researches and their problems.

2.c.2 Demonstrate Respect for right researches' and involve them and /or their in management decisions.

2.c.3 Demonstrate the more recent in researches in stem cells.

2.c.4. Respect the role and the contributions of other health care professionals regardless their degrees or rank (top management, subordinate or colleague)..

2.c.5. Complies with the requirements of the national code of ethics issued by the Egyptian Medical Syndicate.

(لائحة آداب المهنة الصادرة من نقابة الأطباء)

2.c.6. Conduct counseling sessions for more advances in researches.

2.c.7. Reflect critically on their own performance and that of others, to recognize personal limitations regarding skills and knowledge to refer their student's facility at the appropriate stage.

2.d. **General and transferable skills**:

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

2.d.1. Establish life-long self-learning required for continuous professional development.

2.d.2. Use the sources of biomedical information and communication technology to remain current with advances in knowledge and practice.

2.d.3. Retrieve, manage, and manipulate information by all means, including electronic means.

2.d.4. Present information clearly in written, electronic and oral forms.

2.d.5.Establish effective interpersonal relationship to Communicate ideas and arguments .

2.d.6. Work effectively as a member or a leader of an interdisciplinary team .

2.d.7. Apply the principles of statistical methods for collection.

3- Course contents:

TOPIC	No of hours	practical	Tutorial/Practical	
I-Microtechnique 1-methods of preparation of microscopic sections. 2-steps of preparation and aim of each step. 3-advantage &disadvantage of each method. 4-principle of staining with H&E. 5-other staining methods.	8	4	4	
II-Microscopy 1-types of microscopes 2-préparation of sections for Light microscope &Electron microscope	4	2	2	
III- Cytology 1-LM&EM picture ,function and molecular biology of cytoplasmic organelles: -membranous(cell membrane, rough endoplasmic reticulum, smooth endoplasmic reticulum, Golgi apparatus, mitochondria, lysosomes, peroxisomes, proteosomes and annulate lamellae) -non membranous organelles(ribosomes, microtubules ,centrioles, cilia , flagella *and* microfilaments) *2-inclusions* 3-nucleus: structure by LM&EM ,function 4-DNA 5-types of RNA 6-physiological cell death	28	14	14	

4- <u>Teaching and learning methods</u>:

<u>METHODS USED:</u>

4.1.Lectures
4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.
4.3.Tutorials.
4.4.Practical classes.
4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / ____week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

5- Students Assessment methods:

5-A) ATTENDANCE CRITERIA: Faculty bylaws

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	Description
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions
6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia (2009).
- ***Alberts, B.; Dennis, B. ; Karen, H.; Alexander, J.; Julian, L.; Martin, R.; Keith, R. and Peter, W. (2010):*** Essential Cell Biology. 3th Edition . Garland Science, New York and London.

6.2. Essential books (text books):

- ***Gartner, L.P.; Hiatt, J.L. and Strum, J.M. (2011):*** Cell Biology and Histology; 6th ed. Wolters Kluwer Lippincott Williams and Wilkins. Philadelphia. Baltimore, New York, London, Buenos Aires. Hong Kong, Sydney, Tokyo.

- ***Ross, M.H. and Pawlina, W. (2011):*** Histology, a Text and Atlas. 6th ed.Lippincott Williams &Wikins, Philadelph

6.3. Periodicals, Web sites, etc:

6.4.1.http://www.medscape.com.
6.4.2.http://www.pubmed.com.
6.4.3.http://master.emedicine.com/maint/cme.asp.
6.4.4.http://www.science direct.com.

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal

Date:8 \ 9 \ 2014.

Benha University :
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*

(Code): HIST 703

Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of 2nd part M.D. genetics program: 2013_ 2014.**
- **Department council no. date 8/9/2013**
- **Faculty council no date 15/8/2013**

A) Basic Information:

- **Allocated marks:** 500 marks
- **Course duration:** 72 weeks of teaching
- **Teaching hours:** 20_hours/week = 900 total teaching hours

	Hours / week	Total hours
1-Small group teaching / tutorials	8 h/week	360 h
2- Practical	12h/week	540 h
Total	20 h/week	900 h

B) Professional Information:

1- *Overall Aim of the Course:*

1.1. Advanced scientific knowledge essential to practice Histology & Cell Biology dealing with tissue processing & imaging procedures by light &electron microcopies.

1.2. Advanced scientific knowledge essential l for establishing & maintaining good researchers.

1.3. Advanced scientific knowledge essential for following the rules of medical ethics.

1.4. Diagnostic, problem solving and decision making as well as communication skills necessary for proper evaluation and management of health problems &researches.

1.5. Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.

1.6. Life long learning competencies necessary for continuous professional development.

1.7. Research education as related to medical practice &more advanced scientific researches.

1.8. Advanced administrative skills necessary for delivery of research service.

2- Intended Learning Outcomes (ILOs)

2.a. Knowledge and understanding**:**

2.a.1. Describe DNA and RNA..

2.a.2.Discuss physiological cell death. 2.a.3.Define mitosis and meiosis .

2.a.4.Describe Gametogenesis(oogenesis &spermatogenesis)

2.a.5.Discuss structure and abnormalities of chromosomes.

2.a.6.Define chromosomal study& *karyotyping*.

2.a.7.Define Sex chromatin (Barr body).

2.a.8. Outlines major clinical applications of cytogenetic diseases

2.b.Intellectual skills:

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

2.b.1. Combine the technical and investigational database to be proficient in histological problem solving.

2.b.2. Generate a list of initial technical hypotheses for each problem.

2.b.3 Analyzes all sources of information to Interpret and evaluate the tissue samples

2.c. <u>Professional and practical skills</u>:

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

2.c.1. Adopt an empathic and holistic approach to the researches and their problems.

2.c.2 Demonstrate Respect for right researches' and involve them and /or their in management decisions.

2.c.3 Demonstrate the more recent in researches in stem cells.

2.c.4. Respect the role and the contributions of other health care professionals regardless their degrees or rank (top management, subordinate or colleague)..

2.c.5. Complies with the requirements of the national code of ethics issued by the Egyptian Medical Syndicate.

(لائحة آداب المهنة الصادرة من نقابة الأطباء)

2.c.6. Conduct counseling sessions for more advances in researches.

2.c.7. Reflect critically on their own performance and that of others, to recognize personal limitations regarding skills and knowledge to refer their student's facility at the appropriate stage.

2.d. **<u>General and transferable skills</u>**:

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

2.d.1. Establish life-long self-learning required for continuous professional development.

2.d.2. Use the sources of biomedical information and communication technology to remain current with advances in knowledge and practice.

2.d.3. Retrieve, manage, and manipulate information by all means,

including electronic means.
2.d.4. Present information clearly in written, electronic and oral forms.

2.d.5.Establish effective interpersonal relationship to Communicate ideas and arguments .

2.d.6. Work effectively as a member or a leader of an interdisciplinary team .

2.d.7. Apply the principles of statistical methods for collection.

3- <u>Course contents</u>:

IV-Cytogenetics 1-cell cycle and cell division (mitosis meiosis) 2-Gametogenesis(oogenesis &spermatogenesis) 3-structure of chromosomes 4-chromosomal study& *karyotyping* *5-chromosomal bands: G banding*, fluorescence *in situ hybridization* 6-Sex chromatin (Barr body) 7-chromosomal aberrations: a-numerical abnormalities: i-aneuploidy (*monosomy,trisomy)* ii-polyploidy (*triploidy* , *tetraploidy,* endoreduplication) b-structural abnormalities: 1- translocation 2- deletion. 3- inversion. 4- insertion. 5- isochromosome6- dicentric chromosome. 7- ring chromosome. 8- duplication. 9- fragile x chromosome			

4- <u>Teaching and learning methods</u>:

<u>METHODS USED:</u>

4.1.Lectures

4.2.Small group discussions: demonstration (slides photographs and video films), models and case study.

4.3.Tutorials.

4.4.Practical classes.

4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

***5- Students Assessment methods*:**

5-A) ATTENDANCE CRITERIA: Faculty bylaws

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	Description
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions
6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

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6.2. Essential books (text books):

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Sydney, Tokyo.

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6.4.1.http://www.medscape.com.
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6.4.3.http://master.emedicine.com/maint/cme.asp.
6.4.4.http://www.science direct.com.

7- <u>Facilities required for teaching and learning</u>:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal

Date:8 \ 9 \ 2013

.

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*

(Code): HIST 704

Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of 2nd part M.D. Body tissues program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/8/2014**

A) Basic Information:

- **Allocated marks:** 500 marks
- **Course duration:** 72 weeks of teaching
- **Teaching hours:** 20_hours/week = 900 total teaching hours

	Hours / week	Total hours
1-Small group teaching / tutorials	8 h/week	360 h
2- Practical	12h/week	540 h
Total	20 h/week	900 h

B) Professional Information:

1- *Overall Aim of the Course:*

1.1. Advanced scientific knowledge essential to practice Histology & Cell Biology dealing with tissue processing & imaging procedures by light &electron microcopies.

1.2. Advanced scientific knowledge essential l for establishing & maintaining good researchers.

1.3. Advanced scientific knowledge essential for following the rules of medical ethics.

1.4. Diagnostic, problem solving and decision making as well as communication skills necessary for proper evaluation and management of health problems &researches.

1.5. Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.

1.6. Life long learning competencies necessary for continuous professional development.

1.7. Research education as related to medical practice &more advanced scientific researches.

1.8. Advanced administrative skills necessary for delivery of research service.

2- Intended Learning Outcomes (ILOs)

2.a. Knowledge and understanding:

2.a.١.Describe Properties ,types and Functional importance of epithelium

2.a.2.Describe Modification of epithelial cell surfaces.

2.a.3. Outlines major clinical applications of epithelial tissue diseases.

2.a.4.Describe general characters and constituents of connective tissue proper.

2.a.5. Describe structure , types and staining properties of CT fibers.

2.a.6. Discuss types of connective tissue proper.

2.a.7. Outlines major clinical applications of connective tissue diseases

2.a.8. Describe histological features of cartilage cells, fibers & matrix and its types.

2.a.9. Outlines major clinical applications of cartilage diseases.

2.a.10. Describe general microscopic features of bone (cells and Intercellular substance) and how it can be studied histologically.

2.a.11.Discuss types of bone.

2.a.12. Describe the development , ossification and repair of bone .

2.a.13. Outlines major clinical applications of bone diseases.

2.a.14. Describe red blood corpuscles (histological structure &function).

2.a.15. Describe histological structure ,function and abnormalities of granular and non granular leucocytes.

2.a16.Define differential leucocytic count.

2.a.17.Describe blood platelets (histological structure &function).

2.a.18. Discuss haemopoiesis.

2.a.19. Describe myeloid tissue.

2.a.20. Outlines major clinical applications of blood diseases.

2.a.21. Describe general features &types of skeletal muscle fibers .

2.a.22. Describe organization of skeletal muscle.

2.a.23. Describe functional ultrastructure of myofibrils& sarcomere and molecular structure of actin and myosin.

2.a.24. Describe cardiac muscle (general structure ,functional relations and endocrine function).

2.a.25. Describe Conducting system of the heart and moderator band.

2.a.26. Describe general structure of smooth muscle muscle.

2.a.27. Describe muscle contraction& innervation of three types of muscles.

2.a.28. Describe comparative study of three types of muscles.

2.a.29. Describe growth and regenerative ability of muscular tissue .

2.a.30. Outlines major clinical applications of muscle diseases .

2.a.31. Describe Structure(LM&EM) of neuron cell body and Compare between axon and dendrites.

2.a.32.Outline types of nerve cells.

2.a.33. Describe types , structure and organization of nerve fibers.

2.a.34. Describe mylination of CNS&PNS.

2.a.35. Describe types &structure of nerve ganglia.

2.a.36. Describe structure and types of synapses.

2.a.37. Describe degeneration and regeneration of neurons.

2.a.38. Define stains used to study nervous tissue .

2.a.39. Describe Neuroglia structure and their functions.

2.a.40. Describe Types and structure of nerve endings .

2.a. 41.disuss ation potential and nerve Condution .

2.a.42. Outlines major clinical applications of nervous tissue diseases.

2.a.43. Describe general structure of the wall of blood vessels.

2.a.44. Describe histological structure &function of Large , Medium-Sized& small Arteries.

2.a.45. Describe histological structure &function of Large , Medium-Sized& small Veins.

2.a.46. Describe histological structure of specialized arteries &veins.

2.a.47. Describe histological structure and function of Capillaries.

2.a.48. Describe Sinusoids .

2.a.49. Describe arteriovenous anastomosis.

2.a.50. Describe histological structure of epicardium ,myocardium ,endocardium and valves of the heart.

2.a.51.Outlines major clinical applications of Cardiovascular diseases.

2.a.52. Describe structure of lymph vessels.

2.a.53Disuss types of immunity.

2.a.54. Describe histological structure &function of lympoid organs (Lymph Nodes, Spleen andThymus)

2.a.55. Describe histological structure &function of Tonsils and Mucosal immune system.

2.a.56.Describe Cells involved in the immune system

2.a.57. Describe histological structure &function of Mononuclear phagocytes and Antigen presenting cells.

2.a.58.Outlines major clinical applications of immune system diseases.

2.a.59.Discuss Histogenesis.

2.b.Intellectual skills:

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

2.b.1. Combine the technical and investigational database to be proficient in histological problem solving.

2.b.2. Generate a list of initial technical hypotheses for each problem.

2.b.3 Analyzes all sources of information to Interpret and evaluate the tissue samples

2.c. Professional and practical skills:

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

2.c.1. Adopt an empathic and holistic approach to the researches and their problems.

2.c.2 Demonstrate Respect for right researches' and involve them and /or their in management decisions.

2.c.3 Demonstrate the more recent in researches in stem cells.

2.c.4. Respect the role and the contributions of other health care professionals regardless their degrees or rank (top management, subordinate or colleague)..

2.c.5. Complies with the requirements of the national code of ethics issued by the Egyptian Medical Syndicate.

(لائحة آداب المهنة الصادرة من نقابة الأطباء)

2.c.6. Conduct counseling sessions for more advances in researches.

2.c.7. Reflect critically on their own performance and that of others, to recognize personal limitations regarding skills and knowledge to refer their student's facility at the appropriate stage.

2.d. **General and transferable skills**:

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

2.d.1. Establish life-long self-learning required for continuous professional development.

2.d.2. Use the sources of biomedical information and communication technology to remain current with advances in knowledge and practice.

2.d.3. Retrieve, manage, and manipulate information by all means, including electronic means.

2.d.4. Present information clearly in written, electronic and oral forms.

2.d.5.Establish effective interpersonal relationship to Communicate ideas and arguments .

2.d.6. Work effectively as a member or a leader of an interdisciplinary

team .

2.d.7. Apply the principles of statistical methods for collection.

3- Course contents:

V-Epithelial tissue: 1-Properties of epithelium . 2-Types of epithelium:(covering -glandular -neuro epithelium & myoepithelium) 3-Examples and sites of each type. 4-Functional importance. 5-Modification of epithelial cell surfaces.	8	4	4

VI- Connective tissue 1-general character of connective tissue proper. 2-constituents of CT (ground substance, fibers, cells). 3-structure , types and staining properties of CT fibers. 4-types of connective tissue proper and site of each: 1. loose (areolar) connective tissue . 2. white fibrous or tendinous connective tissue . 3. yellow elastic connective tissue 4. adipose connective tissue 5. reticular connective tissue 6. mucoid (myxomatous) connective tissue	8	4	4	
VII- Cartilage : 1-histological features of cartilage cells, fibers & matrix. 2-Types of cartilage and their specific histological features. a-hyaline cartilage. b. yellow elastic cartilage. c. white fibro-cartilage.	4	2	2	

VIII-Bone 1-General microscopic features of bone and how it can be studied histologically 2-Types (compact & spongy bone): structure, sites, and function. 3-Bone cells :structure (LM&EM) and functions . 4-Intercellular substance of bone . 5-The development and ossification	12	6	6	
IX-Blood 1-red blood corpuscles (histological structure &function). 2- histological structure &function of granular leucocytes(neutrophil ,eosinophil , basophils). 3- histological structure &function of non granular leucocytes (lymphocytes& monocytes). 4-differential leucocytic count 5-blood platelets (histological structure &function). 6-haemopoiesis. 7-myeloid tissue(inactive yellow bone marrow& active red bone marrow).	12	6	6	

X-Muscle tissue 1-General character and types . 2-skeletal muscle: -general features &types of skeletal muscle fibers . -organization of skeletal muscle. -functional ultrastructure of myofibrils& sarcomere. -molecular structure of actin and myosin -muscle contraction -innervation of skeletal muscle -cardiac muscle -general structure and functional relations. -Intercalated discs -Conducting system of the heart -moderator band 3-smooth muscle : general structure, muscle contraction& innervation. 4- comparative study of three types of muscles. 5- growth and regenerative ability of muscular tissue .	12	6	6

XI-Nervous tissue 1-Structure of neuron (LM&EM) cell body, axon, ,dendrites 2- types of nerve cells 3-types and structure of nerve fibers 4-organization of nerve fibers mylination of CNS&PNS 6-nerve ganglia (types &structure). 7-synapses(structure and types) 8-degeneration and regeneration of neurons 9-stain used to study nervous tissue including those of degeneration 10-Neuroglia structure and their functions 11-Types and structure of nerve endings (receptors and effector)	12	6	6
Total	120	60	60

TOPIC	No of hours	lecture	Tutorial/practica

I-CARDIOVASCULAR SYSTEM 1-general structure of the wall of blood vessels 2-Arteries: Large , Medium-Sized& small (histological structure &function) 3-Veins ;Large , Medium-Sized& small(histological structure &function) 4-histological structure of specialized arteries &veins. 5-arteriovenous connections : a-Capillaries histological structure and function b- Sinusoids c-arteriovenous anastomosis 6-Heart; histological structure of epicardium ,myocardium ,endocardium and valves	8	4	4	
II-THE IMMUNE SYSTEM AND LYMPHOID ORGANS 1-structure of lymph vessels 2-distribution and structure of lymphoid tissue . 3-lymphatic organs: a- Lymph Nodes (histological structure &function) b-Spleen(histological structure &function& microcirculation) c-Tonsils(histological structure &function) d-Thymus(histological structure &function) e-Mucosal immune system (histological structure &function) 4-Mononuclear phagocytes 5-Cells involved in the immune system 6- Antigen presenting cells				

4- Teaching and learning methods:

METHODS USED:

4.1.Lectures

4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.

4.3.Tutorials.

4.4.Practical classes.
4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / ____week	1728 hours	
Tutorial	10 hours / week	960 hours	
Total	48 hours/week	3608 hours	

***5- Students Assessment methods*:**

5-A) ATTENDANCE CRITERIA: Faculty bylaws

5-B) Assessment TOOLS:

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) TIME SCHEDULE:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) Weighting System:

Examination	Marks allocated	% of Total Marks
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

FORMATIVE ASSESSMENT:
Student knows his marks after the Formative exams.

5-E) Examinassions description:

Examination	Description
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions
6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia (2009).
- ***Alberts, B.; Dennis, B. ; Karen, H.; Alexander, J.; Julian, L.; Martin, R.; Keith, R. and Peter, W. (2010):*** Essential Cell Biology. 3th Edition . Garland Science, New York and London.

6.2. Essential books (text books):

- ***Gartner, L.P.; Hiatt, J.L. and Strum, J.M. (2011):*** Cell Biology and Histology; 6th ed. Wolters Kluwer Lippincott Williams and Wilkins. Philadelphia. Baltimore, New York, London, Buenos Aires. Hong Kong, Sydney, Tokyo.

- ***Ross, M.H. and Pawlina, W. (2011):*** Histology, a Text and Atlas. 6th ed.Lippincott Williams &Wikins, Philadelph

6.3. Periodicals, Web sites, etc:

6.4.1.http://www.medscape.com.
6.4.2.http://www.pubmed.com.
6.4.3.http://master.emedicine.com/maint/cme.asp.
6.4.4.http://www.science direct.com.

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal

Date:8 \ 9 \ 2014.

Benha University
Faculty of Medicine
Department of Histology & Cell Biology

Course Specifications

Course title: *Histology & Cell Biology*

(Code): HIST 705

Academic Year (2013 – 2014)

- **Department offering the course:** Histology & Cell Biology
- **Academic year of 2nd part M.D. Body systems program: 2014_ 2015.**
- **Department council no. date 8/9/2014**
- **Faculty council no date 15/8/2014**

A) Basic Information:

- **Allocated marks:** 500 marks
- **Course duration:** 72 weeks of teaching
- **Teaching hours:** 20_hours/week = 900 total teaching hours

	Hours / week	Total hours
1-Small group teaching / tutorials	8 h/week	360 h
2- Practical	12h/week	540 h
Total	20 h/week	900 h

B) Professional Information:

1- *Overall Aim of the Course:*

1.1. Advanced scientific knowledge essential to practice Histology & Cell Biology dealing with tissue processing & imaging procedures by light

&electron microcopies.

1.2. Advanced scientific knowledge essential l for establishing & maintaining good researchers.

1.3. Advanced scientific knowledge essential for following the rules of medical ethics.

1.4. Diagnostic, problem solving and decision making as well as communication skills necessary for proper evaluation and management of health problems &researches.

1.5. Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.

1.6. Life long learning competencies necessary for continuous professional development.

1.7. Research education as related to medical practice &more advanced scientific researches.

1.8. Advanced administrative skills necessary for delivery of research service.

2- Intended Learning Outcomes (ILOs):

2.a. Knowledge and understanding:

2.a.1. Describe histological structure &function of epidermis and dermis..

2.a.2. compare between types of skin.

2.a.3.Describe pigmentation of skin.

2.a.4.Describe Immune response in skin.

2.a.5.Describe skin appendages.

2.a.6.Describe Sensory receptors of skin.

2.a.7.Disuss clinical correlations with skin .

2.a.8.Discuss histological structure and function of conducting portion of respiratory system**.**

2.a.9.Discuss histological structure and function of respiratory portion of respiratory system**.**

2.a10.Describe structure of pleura.

2.a.11.Describe structure of foetal lung.

2.a.12.Discuss non respiratory function of lung.

2.a.13.Describe Bronchus associated lymphoid tissue.

2.a.14.Outline Clinical correlations of respiratory system.

2.a. 15. Discuss structure of Oral cavity(Lip, cheeks, Tongue and teeth).

2.a.16. Discuss classification and structure of salivary glands.

2.a.17. Discuss structure of palate and pharynx.

2.a.18.Describe structure and function of four layers of digestive tube from oesopagus until to anal Canal.

2.a.19.Describe Gastro-Oesophageal Junction.

2.a.20.Describe Gastroduodenal Junction.

2.a.21.Describe Rectoanal Junction.

2.a.23.Discuss histological structure of Appendix.

2.a.24.Discuss histological structure and function of Liver and Gall Bladder.

2.a.25.Discuss histological structure and function of pancreas.

2.a.26.Outline Clinical correlations of digestive system.

2.a.27.Discuss histological structure ,development and function of Pituitary Gland .

2.a.28.Discuss histological structure ,development and function of Thyroid and Parathyroid Glands.

2.a.29.Discuss histological structure ,development and function of Adrenal (Suprarenal) Glands.

2.a.30.Discuss histological structure and function of pineal body.

2.a.31.Discuss histological structure and function of diffuse neuroendocrine system.

2.a.32.Outline Clinical correlations of endocrine system.

2.a.33. Discuss the histological structure,development and function of Kidneys.

2.a.34. Discuss the histological structure and function of The Ureter and Urinary Bladder

2.a.35. Discuss the histological structures of male and female urethra.

2.a.36. Outline the clinical correlations of urinay system .

2.a.37. Discuss the histological structure,development and function of The Testis.

2.a.38.Discuss the histological structure and function of male genital ducts (tubuli recti ,rete testis ,epididymis ,Vas Deferensand ejaclaulatory ducts).

2.a.39.DescribeThe spermatic Cord.

2.a.40.Discuss the histological structure and function of accessory male genital glands .

2.a.41.Describe structure and function of The Penis.

2.a.42.Outline the clinical correlations of the male genital system.

2.a.43. Discuss the histological structure ,development and function of Ovaries.

2.a.44. Discuss the histological structure and function of the Uterus and the Uterine Tubes

2.a.45.Discuss cyclic changes of endometrium.

2.a.46. Discuss the histological structure and function of the cervix and the vagina.

2.a.47. Discuss the histological structure and function of Placenta.

2.a.48. Desribe female external genitalia.

2.a.49.Discuss the histological structure and function of Mammary Glands and Compare between Resting & Lactating Mammary Gland .

2.a.50.Outline the clinical correlations of the female genital system.

2.a.51.Discuss the histological structure and function of sclera and Cornea and describe corneoscleral junction..

2.a.52.Discuss the histological structure and function of the Uvea

2.a53.Discuss the histological structure,development and function of Retina

2.a.54. Describe refractive media of the eye.

2.a.55. Define chambers of the eye.

2.a.56.Discuss the histological structure and function of conjunctiva and eye lid.

2.a.57.Discuss lacrimal glands .

2.a.58.Outline the clinical correlations of the eye.

2.a59. Describe the structure of the external ear.

2.a.60. Describe the structure and development of the middle ear .

2.a.61.Discuss the histological structure and function of auditory tube.

2.a.62. Discuss inner ear(Bony Labyrinth and membranous

Labyrinth) and its development.

2.a.63.Outline the clinical correlations of the ear.

2.a.64. Describe meninges and CSF.

2.a.65. Describe various levels of sections in spinal cord.

2.a.66.Describe pathways of ascending and descending tracts.

2.a.67.Describe the levels of Brain stem.

2.a.68.Discuss the histological structures and function of cerebrum.

2.a.69.Discuss the histological structures and function of cerebellum.

2.a.70.Describe the development of the CNS.

2.a.71.Outline the clinical correlations of the Central nervous system.

2.b.Intellectual skills:

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

2.b.1. Combine the technical and investigational database to be proficient in histological problem solving.

2.b.2. Generate a list of initial technical hypotheses for each problem.

2.b.3 Analyzes all sources of information to Interpret and evaluate the tissue samples

2.c. Professional and practical skills:

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

2.c.1. Adopt an empathic and holistic approach to the researches and their problems.

2.c.2 Demonstrate Respect for right researches' and involve them and /or their in management decisions.

2.c.3 Demonstrate the more recent in researches in stem cells.

2.c.4. Respect the role and the contributions of other health care professionals regardless their degrees or rank (top management, subordinate or colleague)..

2.c.5. Complies with the requirements of the national code of ethics issued by the Egyptian Medical Syndicate.

(لائحة آداب المهنة الصادرة من نقابة الأطباء)

2.c.6. Conduct counseling sessions for more advances in researches.

2.c.7. Reflect critically on their own performance and that of others, to recognize personal limitations regarding skills and knowledge to refer their student's facility at the appropriate stage.

2.d. **General and transferable skills**:

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

2.d.1. Establish life-long self-learning required for continuous professional development.

2.d.2. Use the sources of biomedical information and communication technology to remain current with advances in knowledge and practice.

2.d.3. Retrieve, manage, and manipulate information by all means, including electronic means.

2.d.4. Present information clearly in written, electronic and oral forms.

2.d.5.Establish effective interpersonal relationship to Communicate ideas and arguments .

2.d.6. Work effectively as a member or a leader of an interdisciplinary team .

2.d.7. Apply the principles of statistical methods for collection

3- course contents

IV-THE INTEGUMENTARY SYSTEM 1-structure and function of the skin 2-histological structure &function of epidermis, dermis (papillary and reticular layer) 3-Different types of cells present in the epidermis (keratinocytes, melanocytes, langerhan's cells, Merkel's cells) 4-Types of skin and their sites :Thick Skin& Thin Skin. 5-pigmentation of skin 6-Immune response in skin 7-Sweat glands 8-Hair &hair follicles 9-Sebaceous glands and erector pili muscles 10-Sensory receptors of skin			

1- conducting portion of **V- THE RESPIRATORY SYSTEM** respiratory system (histological structure and function) nasal cavity, nasal conchae, olfactory area, paranasal sinuses, nasopharynx, pharyngeal tonsils, larynx, epiglottis, trachea, bronchial tree, bronchioles) 2- respiratory portion respiratory (histological structure and function) bronhioles, alveolar ducts, alveolar sacs, alveoli ,interalveolar wall) 3-structure of pleura 4-structure of foetal lung 5-Non respiratory function of lung 6-Bronchus associated lymphoid tissue	8	4	4

VI-THE DIGESTIVE SYSTEM 1-Oral cavity(Lip, cheeks, Tongue) salivary glands(classification, typesof acini ,parotid ,sublingual& submandibular) palate and pharynx 2-Digestive tube : General features (structure and function of four layers) 3-Oesophagus 4-Gastro-Oesophageal Junction 5-Stomach (cardiac ,Fundus , Pylorus) 6-Gastroduodenal Junction 7-Small Intestine *8-Large Intestine* *9-Appendix* *10-rectum and anal Canal* *11-Pancreas* *12- Liver &-Gall Bladder*	24	12	12
VII-THE URINARY SYSTEM 1-Kidneys 2-The Ureter 3-Urinary Bladder 4-male urethra 5-female urethra	8	4	4

VIII- THE ENDOCRINE SYSTEM 1-Pituitary Gland 2-Thyroid Gland 3-Parathyroid Glands 4-Adrenal (Suprarenal) Glands 5- pineal body 6-islet's of pancreas 7-difuse neuroendocrine system	12	6	6
IX-THE MALE REPRODUCTIVE SYSTEM 1-The Testis 2-Male genital ducts (histological structure &function)of tubuli recti, rete testis ,epididymis, Ductus Deferens (Vas Deferens) & spermatic Cord 3-sccessory male genital tracts (histological structure &function) seminal vesicles ,Prostate. bulbourethral glands of Cowper 4-The Penis	8	4	4

X- THE FEMALE REPRODUCTIVE SYSTEM 1-Ovaries(histological structure &function) 2-The Uterine Tubes 3-The Uterus (histological structure &function) 4-cyclic changes of endometrium 5-cervix(histological structure &function) 6-Placenta 7-vagina(histological structure &function) 8-external genitalia 9- Mammary Glands (Resting & Lactating Mammary Gland)	8	4	4

XI-THE EYE 1-wall of the eye 2-external fibrous coat : histologica structure &function of(sclera, Cornea, corneoscleral junction) 3-middle vascular coat histologica structure &function of (choroids,ciliary body ,iris) 4- Retina (inner nervous coat)histological structure &function. 5 refractive media of the eye , lens ((histological structure &function chambers of the eye 7-vitreous body 8-accessory structure of the eye (conjunctiva ,eye lid, lacrimal glands)	8	4	4
XII- THE EAR 1-external ear (Auricle ,external auditory meatus ,tympanic membrane) 2-middle ear (tympanic cavity, auditory ossicles, windows ,auditory tube) 3-inner ear :Bony Labyrinth &membranous Labyrinth	8	4	4

XIII-CNS 10- Anatomical consideration of CNS 11- meninges 12- spinal cord 13- medulla oblongata 14- pons 15- mid brain 16- cerebellum 17- dinencephalon 18- cerebral cortex	12	6

4- Teaching and learning methods:

METHODS USED:

4.1.Lectures

4.2.Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.

4.3.Tutorials.

4.4.Practical classes.

4.5.Seminars.

TEACHING PLAN:

Lectures: Division of students into 3 groups
20 h /week, Time from 9.00 am to 3.00 pm .

Tutorials: 10 h/week.

Practical classes: 18 h/week.

Time plan:

Item	Time schedule	Teaching hours	Total hours
Lectures	20 h /week; one hour each between to	1920 hours	
Practical	18 hours / week	1728 hours	
Tutorial	10 hours / week	960 hours	

Total	48 hours/week	3608 hours	

***5- Students Assessment methods*:**

5-A) <u>ATTENDANCE CRITERIA</u>: Faculty bylaws

5-B) <u>Assessment TOOLS:</u>

Tool	Purpose (ILOs)
Written examination	To assess knowledge acquisition
Oral examination	To assess understanding and stability of knowledge given, attitude and presentation.
Practical examination	To assess practical skills.

5-C) <u>TIME SCHEDULE</u>:

Exam	Week
1- First part examination	24 weeks
2- Second part examination	72 weeks

5-D) <u>Weighting System:</u>

Examination	**Marks allocated**	**% of Total Marks**
1- First part exam	1200	70.5%
2- Second part exam: a _Written b- Practical c- Oral	500 300 100 100	29.4%
6- Assignments & other activities	____	_____
Total	**1700**	**100%**

5-E) <u>Examinassions description:</u>

Examination	**Description**
1- First part exam	Objectively structured questions
5- Final exam: a- Written b- Practical c- Oral	 e.g. select (MCQs) & Supply (Short essay) questions e.g. Do, identify e.g. How many sessions

6- Assignments & other activities	e.g. Assignments, projects, practical books etc
Total	_

6- List of references:

6.1. Basic materials:

- Theory & practice of histological techniques: ***Bancroft, J.D. and Gamble,M.*** (eds) ; 6th ed. Charchill livingstone of Elsevier, Philadelphia (2009).
- ***Alberts, B.; Dennis, B. ; Karen, H.; Alexander, J.; Julian, L.; Martin, R.; Keith, R. and Peter, W. (2010):*** Essential Cell Biology. 3th Edition . Garland Science, New York and London.

6.2. Essential books (text books):

- ***Gartner, L.P.; Hiatt, J.L. and Strum, J.M. (2011):*** Cell Biology and Histology; 6th ed. Wolters Kluwer Lippincott Williams and Wilkins. Philadelphia. Baltimore, New York, London, Buenos Aires. Hong Kong, Sydney, Tokyo.

- ***Ross, M.H. and Pawlina, W. (2011):*** Histology, a Text and Atlas. 6th ed.Lippincott Williams &Wikins, Philadelph

6.3. Periodicals, Web sites, etc:

6.4.1.http://www.medscape.com.
6.4.2.http://www.pubmed.com.
6.4.3.http://master.emedicine.com/maint/cme.asp.
6.4.4.http://www.science direct.com.

7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls: 2
- Museum hall:6th floor
- Department lab

Course coordinator: Prof Dr. Omayma Kamel Helal
Head of Department: Prof Dr. Omayma Kamel Helal

Date:8 \ 9 \ 2014.

الملحقات :

ملحق ١: Academic standard of the program

ملحق ٢:المعايير القياسية العامة للدراسات العليا الصادرة عن الهيئة.

ملحق 3: Benchmarks (المعاييرالمرجعية الخارجية)

ملحق 4: مصفوفة المعايير الأكاديمية للبرنامج مع المعايير القياسية للدراسات العليا الصادرة عن الهيئة.

ملحق ٥: مصفوفة البرنامج مع المعايير الأكاديمية للبرنامج.

ملحق ٦: مصفوفة المقررات مع البرنامج Program-Courses ILOs Matrix

ملحق ١: Academic standard of the program

جامعة بنها
كلية الطب
قسم الطب الشرعي و السموم الأكلينيكية

وثيقة المعايير الأكاديمية المرجعية لبرنامج الدكتواه

Academic Reference Standards (ARS) for MD Degree in Histology and Cell Biology

1. Graduate Attributes:

1.a. Efficient in carrying out the basis and advances in methodology of scientific research in histology.

1.b. The continous working to add new knowledge in histological fields. .

1.c. Applying the analytical course and critical apprasial of knowledge in histological speciality and its related fields.

1.d. Merging the specialized knowledge with other related knowledge with conclusion and developing the relationships in between. .

1.e. Showing a deep awarness with the ongoing problems , theories, and advanced science in histology .

1.f. Determination of the professional problems and creating solutions for them.

1.g. Demonstrate proficiency in a wide range of specialized histological skills by using different methods in assessment of the biopsies e.g. immunohistochemistry, FNAC, immunoflourescent microscopy ……

1.h. Show orientation towards developing new methods, tools and techniques for professional practice both in teaching to undergraduates and inside histological laboratory.

1.i. Use appropriate technological methods that are required for running of a histopathology laboratory considering health and safety regulations.

1.j. Demonstrate appropriate communication skills, good working relationships with colleagues and leading team works in different professional contexts.

1.k. Decision making through the avaliable information

1.l. Use available resources (e.g. microscopes, microtomes, tissue processors, special stains, pathology museum…….)wisely, develop them and work to find new ones.

1.m. Conduct an efficacious research according to the needs of the Egyptian community in general and Kalybia governorate specially, and be prepared for continuous professional

1.n. Behave in a way which reflect his credibility, accountability and responsibility

1.o. Commit to continuous self-development and transfer his experience to colleagues.

1.p. Keeping continous self development and transfer his experiences and knowledge to others by

2. Academic Standards:

2.1. Knowledge and understanding:

By the end of Master program, the graduate should recognize and understand the followings:

2.a.1. Describe the recent knowledge of histological structure of different body tissues and organs.

2.a.2. Illustrate the function of different cells , tissues and organs in relation to their microscopic and molicular structure.

2.a.3. List the ethics in in research regarding the human and the experimental animals

2.a.4. Recognition of the fundamentals of quality in the professional practice in the fieldof histology

2.a.5. Determination of the value of early research in histology and cell biology and widening the area that benefit from this service.

2.2. Intellectual skills:

By the end of Master program, graduate should be able to recognize the followings:

2.b.1. Interpretation of data effectively with other members of the histology department.

2.b.2. Make differential diagnosis for problematic cases according to given .histological data.

2.b.3. Analysis of medical research about specified medical problem (thesis) in large extended manner than the master degree.

2.b.4. Outline basis of performing medical research paper.

2.b.5. Assessment of risk in professional practices in histology.

2.b.6. Development of the habit of lifelong learning and improvement of performance in the field of histology.

2.b.7. Making a professional decision in various broblemsrecent histological .

2.b.8. Demonstration of creativity.

2.b.9. Conduction of discussion based on facts and evidences.

2.3. Practical/Professional skills

By the end of Master program, graduate should accept the followings skills:

2.c.1. Preparesolutionsused in micro technique wnd different stsins perfectly.

2.c.2. Perform all the methods of administration to lab animals..

2.c.3. Evaluation of histochemical and immunohistochemical stains in normal and diseased tissues and variety of molecular pathology techniques.

2.c.4. Using new techniques as immunoflourescence microscopy to reach a more accurate diagnosis when indicated .

2.c.5. Teach tissue prepration for E.M. Perfectly

2.4. Communication and transferable skills:

By the end of Master program, graduate should accept the following skills:

.2d.1 .Communicating clearly, sensitively and effectively with their colleagues and with the patients and their relatives.

2.d.2. Using the sources of information technology to remain current with the advances in knowledge & practice.

2.d.3. Assessment of the performance of undergraduate students in practical lessons and technical staff in surgical pathology laboratory.

2.d.4. Application of self-evaluation and demonstration of independent and continuous learning.

2.d.5. Use the available sources of biomedical information for continuous retrieval of knowledge.

2.d.6. Respect team working and do his role well in different situations (member/ leader).

2.d.7. Management of seminars and scientific meetings regarding topics presented and time allowed for each topic.

اعتماد مجلس القسم رقم (.....) ، بتاريخ .../...../.....

رئيس مجلس القسم

اعتماد مجلس الكلية ٢٠١٣/٦

- **Attributes of gratitude:**

By the end of the MD program, the graduate should be able to:

1.a. Efficient in carrying out the basis and advances in methodology of scientific research in histology.

1.b. The continous working to add new knowledge in histological fields. .

1.c. Applying the analytical course and critical apprasial of knowledge in histological speciality and its related fields.

1.d. Merging the specialized knowledge with other related knowledge with conclusion and developing the relationships in between. .

1.e. Showing a deep awarness with the ongoing problems , theories, and advanced science in histology .

1.f. Determination of the professional problems and creating solutions for them.

1.g. Demonstrate proficiency in a wide range of specialized histological skills by using different methods in assessment of the biopsies e.g. immunohistochemistry, FNAC, immunoflourescent microscopy ……

1.h. Show orientation towards developing new methods, tools and techniques for professional practice both in teaching to undergraduates and inside histological laboratory.

1.i. Use appropriate technological methods that are required for running of a histopathology laboratory considering health and safety regulations.

1.j. Demonstrate appropriate communication skills, good working relationships with colleagues and leading team works in different professional contexts.

1.k. Decision making through the avaliable information

1.l. Use available resources (e.g. microscopes, microtomes, tissue processors, special stains, pathology museum…….)wisely, develop them and work to find new ones.

1.m. Conduct an efficacious research according to the needs of the Egyptian community in general and Kalybia governorate specially, and be prepared for continuous professional

1.n. Behave in a way which reflect his credibility, accountability and responsibility

1.o. Commit to continuous self-development and transfer his experience to colleagues.

1.p. Keeping continous self development and transfer his experiences and knowledge to others by

2- Academic standards:

2.a Knowledge and Understanding:

By the end of the MD program, the graduate should be able to recognize and understand the following:

2.a.1. Describe the recent knowledge of histological structure of different body tissues and organs.

2.a.2. Illustrate the function of different cells , tissues and organs in relation to their microscopic and molicular structure.

2.a.3. List the ethics in in research regarding the human and the experimental animals

2.a.4. Recognition of the fundamentals of quality in the professional practice in the fieldof histology

2.a.5. Determination of the value of early research in histology and cell biology and widening the area that benefit from this service.

2.b Intellectual Skills:

By the end of the MD program the graduate should be able to recognize and mastering the following:

2.b.1. Interpretation of data effectively with other members of the histology department.

2.b.2. Make differential diagnosis for problematic cases according to given .histological data.

2.b.3. Analysis of medical research about specified medical problem (thesis) in large extended manner than the master degree.

2.b.4. Outline basis of performing medical research paper.

2.b.5. Assessment of risk in professional practices in histology.

2.b.6. Development of the habit of lifelong learning and improvement of performance in the field of histology.

2.b.7. Making a professional decision in various broblemsrecent histological .

2.b.8. Demonstration of creativity.

2.b.9. Conduction of discussion based on facts and evidences.

2.c Practical & Professional Skills:-

By the end of MD the program, the graduate should accept &apply the following skills:

2.c.1. Preparesolutionsused in micro technique wnd different stsins perfectly.

2.c.2. Perform all the methods of administration to lab animals..

2.c.3. Evaluation of histochemical and immunohistochemical stains in normal and diseased tissues and variety of molecular pathology techniques.

2.c.4. Using new techniques as immunoflourescence microscopy to reach a more accurate diagnosis when indicated .

2.c.5. Teach tissue prepration for E.M. Perfectly

2.d Communication and transferable skills

By the end of the MD program graduate should be able

.2d.1 .Communicating clearly, sensitively and effectively with their colleagues and with the patients and their relatives.

2.d.2. Using the sources of information technology to remain current with the advances in knowledge & practice.

2.d.3. Assessment of the performance of undergraduate students in practical lessons and technical staff in surgical pathology laboratory.

2.d.4. Application of self-evaluation and demonstration of independent and continuous learning.

2.d.5. Use the available sources of biomedical information for continuous retrieval of knowledge.

2.d.6. Respect team working and do his role well in different situations (member/ leader).

2.d.7. Management of seminars and scientific meetings regarding topics presented and time allowed for each topic.

signature

ملحق 2:المعايير القياسية العامة للدراسات العليا الصادرة عن الهيئة

برامج الدكتوراه

١- مواصفات الخريج

خريج برنامج الدكتوراه في أي تخصص يجب أن يكون قادرا على :

١-١ اتقان اساسيات ومنهجيات البحث العلمى

١-٢ العمل المستمر على الاضافة للمعارف فى مجال التخصص

١-٣ تطبيق المنهج التحليلى والناقد للمعارف فى مجال التخصص والمجالات ذات العلاقة

١-٤ دمج المعارف المتخصصة مع المعارف ذات العلاقة مستنبطا ومطورا للعلاقات البينية بينها

١-٥ اظهار وعيا عميقا بالمشاكل الجارية والنظريات الحدية فى مجال التخصص

١-٦ تحديد المشكلات المهنية وايجاد حلولا مبتكرة لحلها

١-٧ اتقان نطاقا واسعا من المهارات المهنية فى مجال التخصص

١-٨ التوجة نحو تطوير طرق وادوات واساليب جديدة للمزاولة المهنية

١-٩ استخدام الوسائل التكنولوجية المناسبة بما يخدم ممارستة المهنية

١-١٠ التواصل بفاعلية وقيادة فريق عمل فى سياقات مهنية مختلفة

١-١١ اتخاذ القرار فى ضل المعلومات المتاحة

١-١٢ توظيف الموارد المتاحة بكفاءة وتنميتها والعمل على ايجاد موارد جديدة

١-١٣ الوعى بدوره فى تنمية المجتمع والحفاظ على البيئة

١-١٤ التصرف بما يعكس الالتزام بالنزاهة والمصداقية وقواعد المهنة

١-١٥ الالتزام بالتنمية الذاتية المستمرة ونقل علمه وخبراته للاخرين

١- المعايير القياسية

١-٢ المعرفة والفهم

بانتهاء دراسة برنامج الدكتوراة يجب ان يكون الخريج قادرا على الفهم والدراية بكل من

٢-١-١ النظريات والاساسيات والحديث من المعارف فى مجال التخصص والمجالات ذات العلاقة

٢-١-٢ اساسيات ومنهجيات واخلاقيات البحث العلمى واداواته المختلفة

٢-١-٣ المبادئ الاخلاقية والقانونية للممارسة المهنية فى مجال التخصص

٢-١-٤ مبادئ واساسيات الجودة فى الممارسة فى مجال التخصص

٢-١-٥ المعارف المتعلقة بأثار ممارسته المهنية على البيئة وطرق تنمية البيئة وصيانتها

٢-٢ المهارات الذهنية

بانتهاء دراسة برنامج الدكتوراه يجب ان يكون الخريج قادرا على

٢-٢-١ تحليل وتقييم المعلومات فى مجال التخصص والقياس عليها والاستنباط منها

٢-٢-٢ حل المشاكل المتخصصة استنادا على المعطيات المتاحة

ملحق ٣: مصفوفة المعايير الأكاديمية للبرنامج مع المعايير القياسية للدراسات العليا الصادرة عن الهيئة

- مواصفات الخريج:

مواصفات الخريج بالمعايير القياسية للدراسات العليا (درجة الدكتوراه)	مواصفات الخريج بالمعايير الأكاديمية للبرنامج
١.١.	1.a,1.b
١.٢.	1.c,1.d.,1.e
١.٣.	**1.f,1.g**
١.٤.	**1.h,1.i,1.j**
١.٥.	**1.k,1.l.,1.m**
١.٦.	**1.n**
١.٧.	**1.o,1.p**

أ ـ المعرفة والفهم:

المعايير القياسية العامة (Generic) للدراسات العليا (درجة الدكتوراة)	المعايير الأكاديمية للبرنامج
بأنتهاء دراسة برنامج الدكتوراه يجب ان يكون الخريج على فهم ودراية	*By the end of Master program, the candidate s recognize and understand the followings:*
2-1-1	2.a.1.
2-1-2	2-a.2
2-1-3	2.a.3
2-1-4	2.a.4
2-1-5	2.a.c

ب ـ القدرات الذهنية :

المعايير الأكاديمية للبرنامج	المعايير القياسية العامة (Generic) للدراسات العليا (درجة الدكتوراه)
By the end of Master program, candidate should be able to recognize the followings:	**بانتهاء دراسة برنامج الد كتوراه يجب ان يكون الخريج قادرا على :**
2.b.1	**2-٢-١**
2.b.2	**2.2.2**
2.b.3	**2.2.3**
2.b.4	**2.2.4**
2.b.5	**2.2.5**
2.b.6	**2.2.6**
2.b.7	**2.2.7**
2.b.8	**2.2.8**
2.b.9	**2.2.9**

ج. مهارات مهنية وعملية :

المعايير الأكاديمية للبرنامج	المعايير القياسية العامة (Generic) للدراسات العليا (درجة الدكتوراة)
By the end of Master program, candidate should acce wings skills:	**بانتهاء دراسة برنامج ادكتوراه يجب ان يكون الخريج قادرا على :**
2.c.1.	**٢-٣-١**
2.c.2, 2.c.3	**٢-٣-٢**
2.c.4	**٢-٣-٣ ٢-٣-٤**
2.c.5	**٢-٣-٥**

د . مهارات عامة و منتقلة :

المعايير القياسية العامة (Generic) للدراسات العليا (درجة الدكتوراه)	المعايير الأكاديمية للبرنامج
استعمال تكنولوجيا المعلومات لخدمة تطوير المهنة	**2.d.2**. Useage of information technology to serve the development of professional practice.
متابعة و تحديد وسائل التعلم الذاتي	**2.d.3**. Assessment and identification of his personal learning needs.
استعمال الوسائل المختلفة للحصول على المعلوات	**2.d.4**. Using different sources to obtain information and knowledge
تطوير القواعد التي تخدم تقييم اداء الغير	**2.d.5**. Developing rules and indications for assessing the performance of others
العمل في جماعة و قيادة فريق العمل	**2.d.6**. Teamwork, and team leadership in various professional contexts
سبل تنظيم الوقت	**2.d.7**. Efficient Time management.
تطوير مهارات مستمرة للتعلم الذاتي	**2.d.8**. Continuous self learning skills

ملحق ٥: مصفوفة مضاهاة المعايير الأكاديمية للبرنامج و أهداف و نواتج تعلم البرنامج

المعايير الأكاديمية لبرنامج الدكتوراة (مواصفات الخريج)	أهداف البرنامج
• To provide the postgraduate student with knowledge, competencies, skills and applications in different branches of histology and cell biology for better dealing with problems facing him with specialty.	1.1
• To give the postgraduate student the ability to integrate the data properly in service of justice .	1.2
• Teaching the advanced medical sciences related to histological practice as (cytogenetics ,molecular biology , pathology, physiology) and the details of statistics needed for research work.	1.3
• Teaching the ethical research requirement and the laws of medical ethics	1.4
• Training the candidates for proper methods of histological techniques	1.5

المعايير الأكاديمية للبرنامج	نواتج تعلم البرنامج																	
	المعرفة والفهم																	
	2.a.1	2.a.2	2.a.3	2.a.4	2.a.5	2.a.6	2.a.7	2.a.8	2.a.9	2.a.10	2.a.11	2.a.12	2.a.13	2.a.14	2.a.15	2.a.16	2.a.17	2.a.18
.أ - المعرفة والفهم : By the end of the program, the candidate should be able to have sound knowledge about : **2.a.a**.	√										√							
2.a.b..		√									√							

							√				√				√			**2.a.c.**
														√				**2.a.d**.
											√		√					**2.a.e**.
										√		√						**2.a.f**..
											√							**2.a.g**.
										√								**2.a.h**
									√									**2.a.i**.
								√										**2.a.j**
							√											**2.a.k**
						√				√			√					**2.a.l**.
					√													**2.a.m**
			√															**2.a.n**.
				√	√													**2.a.o**.
		√																**2.a.p**

نواتج تعلم البرنامج								المعايير الأكاديمية للبرنامج
Intellectual skills								
2.b.8	2.b.7	2.b.6	2.b.5	2.b.4	2.b.3	2.b.2	2.b.1	
							√	**ب ـ القدرات الذهنية :** By the end of the program, the candidate should be able to to gain sufficient skills about: **2.b.1**.
						√		**2.b.2**.
	√				√			**2.b.3**

				√				**2.b.4**..
√			√					**2.b.5**
		√						**2.b.6**
	√							**2.b.7.**
√								**2.b.8**

نواتج تعلم البرنامج											المعايير الأكاديمية للبرنامج
Practical/Professional skills											المهارات المهنية
					2.c.7	2.c.6	2.c.5	2.c.4	2.c.3	2.c.2.	2.c.1.	
							√				√	***By the end of Master program, candidate should accept the followings skills:*** 2.c.1. 2.c.3.
						√		√	√	√		2.c.2 2.c.4
					√							2.c.5

المعايير الأكاديمية للبرنامج	نواتج تعلم البرنامج							
	General and transferable skills							
	2.d.1	2.d.2	2.d.3	2.d.4	2.d.5	2.d.6	2.d.7	2.d.8
د. مهارات عامة : By the end of the program, the candidate should be able to practice: **2.d.1**. Effective communication by all types of effective communication	√			√				
2.d.2. Usage of information technology to serve the development of professional practice.		√						
2.d.3. Assessment and identification of his personal learning needs.			√				√	
2.d.4. Using different sources to obtain information and knowledge				√				
2.d.5 Developing rules and indications for assessing the performance of others.					√			
2.d.6 Teamwork, and team leadership in various professional contexts						√		
2.d.7 Efficient Time management**.**							√	
2.d.8. Continuous self learning skills								√

ملحق (٥) مصفوفة المعارف والمهارات للبرنامج

ملحق (٥) مصفوفة المعارف والمهارات للبرنامج الدراسى

Knowledge & Understanding المعارف								ILOs / Courses & codes	
				2.a.5	2.a.4	2.a.3	2.a.2	2.a.1	
				X	X			X	**HIST702-704** **Histology**
				X		X	X		**HIST706-7012** **Histology**

Intellectual Skills مهارات ذهنية								ILOs / Courses & codes	
					2.b.3	2.b.2	2.b.1		
					X	X	X	HIST702-704	Histology
					X	X	X	HIST706-7012	Histology

Practical & Clinical Skills مهارات عملية و مهنية								ILOs / Courses & codes	
			2.c.6	2.c.5	2.c.4	2.c.3	2.c.2	2.c.1	
			X	X		X		X	HIST702-704	Histology
			X		X		X	X	HIST706-7012	Histology

General and transferable مهارات عامة							ILOs	
2.d.7	2.d.6	2.d.5	2.d.4	2.d.3	2.d.2	2.d.1	Courses & codes	
X	X	X	X	X	X	X	HIST702-704	Histology
X	X	X	X	X	X	X	HIST706-7012	Histology

أستاذ المادة رئيس القسم

التوق