



جامعة بنها  
كلية الطب البشرى  
قسم / التشريح والاجنة

توصيف برنامج ماجستير/ التشريح الادمي والاجنة  
( عام 2013-2014 )

**\* معلومات أساسية :** Basic information

١ - اسم البرنامج : Master of Anatomy & Embryology

٢ - طبيعة البرنامج : multiple ( مشترك )

٣ - الأقسام المسئولة عن البرنامج: قسم التشريح والاجنة ، قسم الانسجة وقسم الكيمياء

٤ - القسم المانح للدرجة : قسم التشريح والاجنة

٥ - تاريخ إقرار البرنامج فى مجلس القسم : ٨ / ٩ / ٢٠١٣

٦ - تاريخ إقرار البرنامج فى مجلس الكلية ٣٥٦ : ١٥ / ٩ / ٢٠١٣

٧ - مسؤول البرنامج : Prof. Dr. Saadia Ahamed Shalaby

٨ - المراجعة الداخلية للبرنامج : Prof. Dr. Abd AlWnees Alawdan

٩ - المراجعة الخارجية للبرنامج : Prof. Dr. Mamdooh Al Ashtoky  
(جامعة الزقازيق)

**\* معلومات متخصصة :** Professional information

**1- Program aims:**

١ - الأهداف العامة للبرنامج :

*The overall aims of the program are:*

1-To offer the basic administrative skills necessary for delivery of research services in the field of anatomy and embryology

2-To provide the students with necessary knowledge & skills of the experimental embryology and related basic medical sciences to



understand the anatomy and congenital malformation of human body

3-To provide the students with basic knowledge for the preparation of different anatomical specimens and injection techniques for freshly obtained bodies and how to prepare a museum jars.

4-To offer lifelong learning competencies necessary for continuous professional development in anatomy and embryology and to follow ethics and quality

## ٢ - المخرجات التعليمية المستهدفة من البرنامج :

### 2-Intended Learning Outcomes (ILOS):

2.a. Knowledge and Understanding : أ.٢ - المعرفة والفهم :

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

- 2.a.1. Describe the gross anatomy of the different body regions & that of neuroanatomy.
- 2.a.2. Explain the development as a key to catch normal and abnormal anatomy.
- 2.a.3. Discuss the anatomical relations in different parts and regions of the human body.
- 2.a.4. Identify the terms and planes and movements of different parts and regions of human body.
- 2.a.5. Describe the morphology, location, vasculature and innervations of different parts of human body.
- 2.a.6 . Describe the most recent important techniques of specimen preparation.
- 2.a.7. Know the details of surgical & applied anatomy.
- 2.a.8. Recognize the impact of fine structure of the anatomical components.
- 2.a.9. Classify the measurements of the different parts of human body .
- 2.a.10. Recognize the radiological anatomy to know structure of deeper details.
- 2.a.11. Demonstrate the surface anatomy of the visible and deeper structures of the body.
- 2.a.12. Discuss the body parameter in successive age advances to give a



way for the study of the growth & development.

**2.a.13. Categorize the teratogenic factors & their effects on the genetics and molecular biology.**

**2.b. Intellectual Skills: ب . القدرات الذهنية :**

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

**2.b.1. Interpret the results of radiological and surface anatomy.**

**2.b.2. Correlate between the developmental basis and its related anatomical facts including the teratogenic factors.**

**2.b.3 Appreciate the danger of the environmental factors on the development of body systems.**

**2.b.4. Formulate a systematic approach for different surgical incisions.**

**2.b.5. Correlate between the normal and abnormal gross structure in the different developmental ages.**

**2.b.6. Analyze the causes of genetic defects**

**2.b.7. Interpret the developmental causes of nervous system .**

**2.b.8. Evaluate the variations of human being .**

**2.b.9. Combine the technical and investigational database to proficient in histological problem solving .**

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

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

**2.c .1 Prepare the embryonic specimen, dissected regions of human body and human organs**



**2.c ..2. Prepare the histological sections to show the structural changes in vertebrate**

**2.c.3 Process & stain the specific tissues specimen and report the immunological structures .**

**2.c .4. Perform anthropometric techniques & methods.**

**2.c.5. Write reports about different anatomical regions and on radiographic films.**

**2.c.6 Perform a cross sectional anatomical specimens.**

**2.c.7 prepare the box slide for CNS specimens.**

**2.c.8 Prepare the museum specimen and recognize the molecular biology techniques .**

2.2 . مهارات عامة و منتقلة:

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

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

**2.d..1. Communicate effectively with teaching stuff and colleagues.**

**2.d..2. Demonstrate appropriate attitude towards teaching stuff and colleagues.**

**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. *Establish* life-long self-learning required for continuous professional development.

- المعايير الأكاديمية للبرنامج:

٣

### 3- Academic Standards

- Academic Standards of Master Program of Anatomy & Embryology Approved in department council: date 6 / 2013 and In faculty council no 354: date 16 / 6 / 2013. (ملحق ١)

### 4- Reference standards (benchmarks) - العلامات المرجعية:

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

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

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

b) Academic reference standards of Oxford , (ملحق ٣)

### (5): Program structure and contents

5 - هيكل ومكونات البرنامج:

أ - مدة البرنامج : سنتان

#### Program duration

- 1<sup>st</sup> part: - One Semester (6 months).
- 2<sup>nd</sup> part: - Two Semester (one year).
- Thesis:- One Semester (6 months)

ب - هيكل البرنامج:

#### Program structure

- Total hours of program 36 credit hours
- Theoretical 13
- Practical 6



## توصيف برنامج -ماجستير التشريح الادمي والاجنة



### ج - هيكل البرنامج : درجة الماجستير في التشريح والاجنة

الساعات المعتمدة	الكود	المقرارات	البند
٦ ساعات	UNIV601	الجامعة والكلية	متطلبات
٦ ساعات		يشمل علي :	الجزء الأول
٤ ساعات	ANAT 601	مادة اساسية :مادة الاجنة ويخصص لها ٧٥ % من درجة الجزء الاول	يشمل: مادة اساسية واحدة + مادة واحدة اختيارية
٢ ساعة	ANAT 602	الهستولوجيا : HISTOLOGY	
	ANAT 603	البيولوجيا الجزيئية Molecular biology	
	ANAT 604	الانثوبولوجيا البيولوجية Boianthropology	
	ANAT 605	التشريح الاشاعي Radiological Anatomy	
	ANAT 606	التشريح المقارن : Comparative Anatomy	
	ANAT 607	التشريح العصبي : Advanced Neuroanatomy	
	ANAT 608	الوراثة الاساسية Basic Genetics	
٥ ساعات		يسجل فيها الانشطة العلمية من حضور مؤتمرات علمية ودورات تدريبية والمساهمة في تحضير عينات تشريحية للمتحف وتجهيز عينات تشريحية للتدريس والتدريب علي اساليب التحنيط الحديثة	كراسة النشطة
٦ ساعات			رسالة الماجستير
١٣ ساعة		مادة التشريح البشري -مادة اساسية -يخصص لها ٧٥ % من الدرجة الكلية	الجزء الثاني
٣٦ ساعة			الاجمالي



**6 - First part (one semester):**

Course Title	Course Code	NO. of hours per week			Total teaching hours/ one semester
		Lectures	Laboratory /practical	Total	
a- Compulsory courses: Embryology يخصص له ٧٥% من (الدرجة)	ANAT 601	3	1	4	90
b-Elective courses: مقرر من المقررات التالية: ويخصص له 25% من الدرجة - Histology - Molecular Biology Bio anthropology - Radiological anatomy - Comparative anatomy -Advanced Neuroanatomy - Basic genetics	ANAT 602 ANAT 603 ANAT 604 ANAT 605 ANAT 606 ANAT 607 ANAT 608	1	1	2	60
		4 hour	2hour	6	150

**Second part (2 semesters):**

a- Compulsory courses:

Course Title	Course Code	NO. of Teaching hours per week			Total teaching hours / 2 semesters
		Theoretical	practical	Total/ Week	
Regional Anatomy	ANAT 609	9	4	13	315

b- Elective courses: none

c- Selective: none



## توصيف برنامج -ماجستير التشريح الادمي والاجنة



### 7- Program admission requirements

### ٧ - متطلبات الإلتحاق بالبرنامج :

مادة (٤): \*\*يشترط في قيد الطالب لدرجة الماجستير: (١)

- أ- أن يكون حاصلًا على درجة البكالوريوس في الطب والجراحة من إحدى جامعات ج.م.ع أو على درجة معادلة لها من معهد علمي معترف به من الجامعة بتقدير جيد على الأقل.
  - ب- يسمح للحاصل على الدبلوم وفقا لنظام هذه اللائحة وبتقدير جيد على الأقل بتسجيل رسالة لاستكمال درجة الماجستير بشرط ألا يكون قد مر أكثر من ثلاث سنوات على تاريخ حصوله على درجة الدبلوم وبغض النظر على تقديره في درجة البكالوريوس.
  - ت- يسمح للحاصل على الدبلوم وعلى خلاف لنظام هذه اللائحة أن يسجل لدرجة الماجستير بشرط أن يكون تقديره في الدبلوم لا يقل عن جيد وبغض النظر عن تقديره في البكالوريوس.
- (٢) أن يكون قد أمضى السنة التدريبية أو ما يعادلها (سنة الامتياز)
- (٣) أن يتفرغ للدراسة لمدة سنة على الأقل في الجزء الثاني (فصلين دراسيين)
- مادة (٥): يكون التقدم للقيود لدرجة الماجستير مرة واحدة في السنة خلال شهري يوليو وأغسطس من كل عام. تبدأ الدراسة لدرجة الماجستير في شهر أكتوبر من كل عام.

### ٨ - القواعد المنظمة لإستكمال البرنامج :

- مادة (٦): تتولى لجنة الدراسات العليا بالكلية عن طريق لجنة تشكل لكل تخصص من أعضاء مجلس القسم التابع له المادة والقسم المانح للدرجة وضع البرنامج التفصيلي للمقررات في حدود الساعات المعتمدة الواردة باللائحة وعند الاختلاف يتم الاسترشاد بمقررات جامعة القاهرة ومقررات الشهادات العالمية الاوربية والامريكية يعتمدها مجالس الأقسام ثم يقرها مجلس الكلية وتشمل هذه الساعات محاضرات نظرية ودروس عملية وتدريب اكلينيكي ومحاضرات وندوات مشتركة.
- مادة (٧): يشترط في الطالب لنيل درجة ماجستير التخصص في أحد الفروع الاكلينيكية والعلوم الطبية الأساسية:
- أ- حضور المقررات الدراسية والتدريبات الاكلينيكية والعملية والمعملية بصفة مرضية طبقا للساعات المعتمدة.
  - ب- أن يقوم بالعمل كطبيب مقيم أصلى أو زائر لمدة سنة على الأقل في قسم التخصص بالنسبة للعلوم الاكلينيكية.
  - ت- أن ينجح في امتحان القسمين الأول والثاني.
  - ث- اجتياز الطلب لثلاث دورات في الحاسب الآلى (دورة في مقدمة الحاسب – دورة تدريبية متوسطة – دورة في تطبيقات الحاسب الآلى) وذلك قبل مناقشة الرسالة.





## توصيف برنامج -ماجستير التشريح الادمي والاجنة



- ج- اجتياز اختبار التوفيل بمستوى لا يقل عن ٤٠٠ وحدة وذلك قبل مناقشة الرسالة.  
د- أن يقوم باعداد بحث فى موضوع تقره الجامعة بعد موافقة مجلس القسم ومجلس الكلية ينتهى باعداد رسالة تقبلها لجنة التحكيم.

### 9 - طرق وقواعد تقييم المتحقين بالبرنامج :

#### 9- Students Assessment Methods:

م	الوسيلة	مخرجات التعلم المستهدفة
1	Written examination	To assess knowledge , understanding & intellectual skills. 2.a.1.....2.a.13., 2.b.1.....2.b.9.
2	Oral examination	To assess knowledge and understanding , intellectual skills & General & transferable skills 2.a.1.....2.a.13, 2.b.1.....2.b.5 &2.d.1.....2.d.7.
3	Practical examination	To assess practical skills, knowledge , understanding & intellectual skills, General & transferable skills 2.a.1.....2.a.13., 2.b.1.....2.b.9. 2.c.1.....2.c.8.

#### Final examination

First part ( one compulsory course +one elective course )

إجمالي	الدرجة			الاختبار	المقرر
	logbook+عملي	شفهي	تحريري		
٢٢٥	٧٥	٥٠	١٠٠	اختبار تحريري مدته ساعتان + اختبار شفهي+عملي	علم الأجنحة(مادة اساسية)
	٢٥			اختبار تحريري مدته ساعة	هستولوجي



## توصيف برنامج -ماجستير التشريح الادمي والاجنة



٧٥		١٠	٤٠	واجدة + اختبار شفهي+عملي	البيولوجيا الجزيئية
					الانثوبولوجيا البيولوجية
					التشريح الاشاعي
					التشريح المقارن
					التشريح العصبي
					الوراثة الاساسية
٣٠٠	١٠٠	٦٠	١٤٠		إجمالي الدرجة

### Second part (one compulsory course)

إجمالي	الدرجة			الاختبار	المقرر
	عملي+logbook	شفهي	تحريري		
٧٠٠	٢٥٠	١٠٠	١٧٥ ورقة اولي + ١٧٥ ورقة ثانية	اختباران تحريريان مدة كل منهما ثلاث ساعات+ اختبار شفهي + اختبار عملي	التشريح البشري
٧٠٠					إجمالي الدرجة



١٠- طرق تقويم البرنامج :

10- Evaluation of Program:

Evaluator	Tools	samples
Internal evaluator (s) مقيّم داخلي	Focus group discussion Meetings	<u>1-2 report</u>
External Evaluator (s) مقيّم خارجي	Reviewing according to external evaluator checklist report.	<u>1-2 report</u>
Senior student (s) طلاب السنة النهائية	None	<u>50%</u>
Alumni الخريجون	استبيانات	<u>50%</u>
Stakeholder (s) أصحاب العمل	None	<u>Represent all sectors</u>
Others طرق أخرى	None	---

المسئول عن البرنامج : Prof. Dr. Saadia Ahamed Shalaby

التاريخ : ٢٠١٣ / ٩

التوقيع Saadia Ahamed Shalaby



توصيف المقررات

**Program courses**

<b>First part</b>
1-Embryology : Code = ANAT 601
1-Histology : Code = ANAT 602
2- Molecular Biology : Code = ANAT 603
3- Boianthropology : Code = ANAT 604
4-Radiological Anatomy : Code = ANAT 605
5-Comparative Anatomy : Code = ANAT 606
6-Advanced Neuroanatomy : Code = ANAT 607
7- Basic Genetics : Code = ANAT 608
<b>Second part</b>
Human Anatomy : Code = ANAT 609



توصيف مقرر/ماجستير التشريح والاجنة

Benha University

Faculty of Medicine

Department of Human Anatomy & Embryology

*Course Specification*

Course title: Embryology

(Code) ANAT 601

Academic Year (2013 – 2014)

**A) Basic Information:**

- Department offering the course: Anatomy & Embryology
- MSC program: 1st part .
- Date of specification approval: Department council Date 8 / 9/ 2013
- Allocated marks: \_\_225\_\_ marks
- Course duration 15 weeks of teaching
- Teaching hours : -

	Hours / week	Total hours
1- Lectures	3/w	45hs
2- Practical	1h/w	45hs
Total	4h/w	90hs

**B) Professional Information:**

**1- Overall Aim of the Course:**

- To provide the recent knowledge necessary for further practice in Embryology



- know experimental embryology to give them the key stone in understanding the anatomy and congenital malformation.
- To practice the principles of preparation the embryological specimens for understanding the steps of development of any anatomical structures .

## **2- Intended Learning Outcomes (ILOs):**

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

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

**2.a.1 Describe** the developmental steps of each organ in each system of human body.

**2.a.2 Classify** the most common congenital anomalies to give an idea for the clinical application.

**2.a.3 Point out** the impact of fine structure of the normal and abnormal structures.

**2.a.4 Explain** the complications of congenital anomalies .

**2.a.5 Describe** the causes of congenital malformations.

**2.a.6 identify** the recent methods for diagnosis of the hidden anomalies .

**2.a.7 Classify** the teratogens which have bad effects on the development of human embryo and how to prevent these bad effects as possible as.

### **2.b. Intellectual Skills:**

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

**2.b.1. Analyze** the different techniques ,stains, and chemicals for the embryological specimens .

**2.b.2.. Interpret** the causes of the discovered congenital anomalies.

**2.b.3.Solve** the problems , environmental factors on the development of body systems.



### **2.c. Practical and professional Skills**

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

**2.c.1** Prepare the embryonic specimens, dissected regions of human body and human organs

**2.c.2** Prepare the age related embryos by using serial sections.

**2.c.3** Study of anomalies in radiological methods.

**2.c.4** Perform a cross section in normal and abnormal anatomical structures.

**2.c.5** Perform the comparison between the human and animal embryos .

**2.c.6** prepare the box slide for CNS.

### **2.d. General and transferable kills:**

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

**2.d.1** Communicate effectively with teaching staff and colleagues.

**2.d.2.** Respects appropriate attitude towards teaching staff and colleagues

**2.d.3.** apply Appropriate ethics necessary for demonstrating appropriate attitudes with students and colleagues.



### 3- Course contents:

<i>Subject</i>	<i>lectures / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
<b>1-General Embryology</b>				
1-male & female reproductive system, oogenesis, ovulation	2	2	4	4.4%
2-spermatogenesis, structure of mature sperm, fertilization	2	2	4	4.4%
3-cleavage, implantation & decidua, bilaminar disc, trilaminar disc	2	2	4	4.4%
4-Folding of embryo	2	2	4	4.4%
5-Derivatives of ectoderm & endoderm & mesoderm	1	1	2	2.2%
6-Fetal membranes: placenta, umbilical cord, amnion, yolk sac - Twins: types ,characters	4	4	8	8.8%
7-Teratology :teratogens ,causes ,mechanisms of malformations	2	2	4	4.4%
<b>Total</b>	<b>15</b>	<b>15</b>	<b>30</b>	<b>33.3%</b>
<b>2-Systemic embryology</b>				
1-Development and anomalies of GIT, related glands& Respiratory system	6	6	12	13.3%
2-Development and anomalies of urinary system	2	2	4	4.4%
3-Development and anomalies of genital system in male and female	4	4	8	8.8%
4-Development and anomalies of heart and big vessels ,Fetal circulation	6	6	12	13.3%
5-Development and anomalies of branchial arches	3	3	6	6.8%
6-Development and anomalies of face ,palate , tongue ,thyroid gland	2	2	4	4.4%
7-Development and anomalies of nervous system	2	2	4	4.4%





8-Development and anomalies of musculoskeletal system and limbs	2	2	4	4.4%
9-Development and anomalies of serous membrane	1	1	2	2.2%
10-Development and anomalies of endocrine gland , skin and appendages	2	2	4	4.4%
<b>Total</b>	<b>30</b>	<b>30</b>	<b>60</b>	<b>66.7%</b>
<b>TOTAL</b>	<b>45</b>	<b>45</b>	<b>90</b>	<b>100%</b>

#### 4- Teaching and learning methods:

##### METHODS USED:

1. Modified Lectures
2. Small group discussions
3. Problem solving.
4. Practical classes

##### TEACHING PLAN:

Item	Time schedule	Teaching hours
Lectures	<u>3</u> times/week; 1 hour of each lecture	45hs
Practical	<u>1</u> hours / <u>   </u> week	45 hs
<b>Total</b>	<b>4 hours/week</b>	<b>90 hs</b>

#### 5-Students Assessment methods:

##### 5-A) ATTENDANCE CRITERIA:

1. Log book.



**5-B) Assessment TOOLS:**

Tool	Purpose (ILOs)
Written examination	To assess knowledge and understanding and intellectual skills
Oral examination	To assess knowledge and understanding and intellectual skills and general skills.
Practical examination	To assess practical skills and intellectual knowledge and understanding and general skills

**5-C) TIME SCHEDULE:**

Examination	Time
Final examination	May or September

**5-D) Weighting System:**

Examination	Marks allocated	% of Total Marks
1- Final examination	<b>225</b>	100%
a- Written	100	44.5%
b- Practical	75	33.3%
c- Oral	50	22.2%
<b>Total</b>	<b>225</b>	<b>100%</b>

**FORMATIVE ASSESSMENT**

**5-E) Examinassions description:**

Examination	Type	Description
Final Examination	1. Written	2-hour written paper composed of short essay ,cases , true &false , cross matching , MCQs
	2. Practical	Spots spots including slides of embryology , a small question should be answered (quiz) , Dissection.
	3. Oral	One oral examination station with 2 staff members (one internal and other external )



## 6- List of references:

### 6.1- Basic materials:

- Keith Moore & Persaud :before we are born,2008
- T.W. Sadler :Medical embryology 2010

### 6.2- Essential books (text books):

- Gray's anatomy : Susan Standring et al **2010**

### 6.3- Recommended books:

- Cunningham:Romances,2006

-Bruce Carlson: Human embryology&development,2009

### 6.4- Periodicals, Web sites,

- [www.bfom.edu.eg](http://www.bfom.edu.eg).

## 7- Facilities required for teaching and learning:

Facilities used for teaching this course include:

- Lecture halls: 1
- Small group classes
- Laboratory:1
- Information technology / AV aids
- Models ,.....etc

رئيس القسم: أ.د. سعدية      استاذ المادة: أ.د. عبد الونيس  
التاريخ/٩/٢٠١٣



Benha University

Faculty of Medicine

Department of Human Anatomy and Embryology

## *Course Specifications*

**Course title:** *Histology*

**(Code):** ANAT 602

**Academic Year (2013 – 2014)**

### **A) Basic Information:**

- Department offering the course: Histology & Cell Biology
- Academic year of master program of anatomy : 2013-2014
- Date of specification approval: 8/ 9 / 2013
- Allocated marks: 75 marks
- Course duration: 15 weeks of teaching
- Teaching hours:-

	Hours / week	Total hours
1- Lectures/ small group discussion	1 h/week	15 h
2- Practical	1h/week	45 h
<b>Total</b>	<b>2 h/week</b>	<b>60 h</b>

### **B) Professional Information:**

#### **1- Overall Aim of the Course:**

- To provide the scientific knowledge essential to practice Histology & dealing with tissue processing & imaging procedures by light & electron microcopies.



- To provide the scientific knowledge essential for establishing & maintaining good researchers.
- To provide the knowledge essential for following the rules of medical ethics.
- Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.
- Life- long learning competencies necessary for continuous professional development.
- Research education as related to medical practice & more advanced scientific researches.
- 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, the student should be able to:

**2.a.1. Describe** the normal fine structure and function of the human body cells at the level of its organ & system .

**2.a.2. Describe** the normal growth and development of the human body cells & its impact on cellular function.

**2.a. 3. Identify** the cell signaling & altered cell behavior.

**2.a.4. Describe** the altered development, growth, structure and function of the body and mind that will be associated with common clinical conditions.



## **2.b. Intellectual skills:**

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

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

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

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

*By the end of the course, the graduate 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 analysis of data.

**2-Course contents:**

<i>Subject</i>	<i>Lecture/Tutorial / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
1-Epithelial tissue: -Properties of epithelium , Types of epithelium Examples and sites of each type ,Functional importance , Modification of epithelial cell surfaces	2	7	9	15%
2- Connective tissue: -General character of connective tissue proper , constituents of CT , structure , types and staining properties of CT fibers , Types of connective tissue proper and site of each	3	8	11	18.3%
3- Cartilage : -Histological features of cartilage cells, fibers & matrix. -Types of cartilage and their specific histological features.	1	4	5	11.7%
4-Bone : -General microscopic features of bone and how it can be studied histologically ,Types , Bone cells , Intercellular substance of bone ,The development and ossification	3	8	11	18.3%
5-Muscle tissue: -General character and types ,skeletal muscle ,cardiac muscle &smooth muscle - Comparative study of three types of muscles. - Growth and regenerative ability of muscular tissue	2	6	8	13.3%
6-Nervous tissue : -Structure of neuron (LM&EM), Types of nerve cells , Types and structure of nerve fibers ,Organization of nerve fibers , Nerve ganglia , Synapses, Degeneration and regeneration of neurons , stain used to study nervous tissue including those of degeneration Neuroglia ,Types and structure of nerve endings	2	6	8	13.3%



7-Blood : -Red blood corpuscles , granular leucocytes, non-granular leucocytes Differential leucocytic count , Blood platelets, Haemopoiesis, myeloid tissue( bone marrow).		2	6	8	13.3%
<b>TOTAL</b>		15	45	60	100%

**4- Teaching and learning methods:**

**METHODS USED:**

- 4.a .Lectures
- 4.b.Small group discussions: demonstration (slides photographs and video films).
- 4.c.Tutorials.
- 4.d.Practical classes.
- 4.e.Seminars.

**TEACHING PLAN:**

Item	Time schedule	Teaching hours	Total hours
Lectures	1 h /week;	15hs	15hs
Practical	1 hours / ___ week	45hs	45hs
<b>Total</b>	2 hours/week	60hs	<b>60hs</b>

**5- Students Assessment methods:**

**5-A) ATTENDANCE CRITERIA:** Faculty by laws

**5-B) Assessment TOOLS:**

Tool	Purpose (ILOs)
Written examination	To assess knowledge, understanding and intellectual skills





Oral examination	To assess knowledge, understanding and intellectual skills , attitude and presentation.
Practical examination	To assess practical skills, knowledge, understanding and intellectual skills, attitude and presentation.

**5-C) TIME SCHEDULE:**

Examination	Time
Final examination	May or September

**5-D) Weighting System:**

Examination	Marks allocated	% of Total Marks
a -Written	40	53.3%
b- Practical	25	33.3%
c- Oral	10	13.4%
<b>Total</b>	<b>75</b>	<b>100%</b>

**FORMATIVE ASSESSMENT:**

Student knows his marks after the Formative exams.

**5-E) Examinassions description:**

Examination	Description
1- Final exam: a- Written b- Practical c- Oral	MCQs, Short essay Do, identify One session of 2 staff members
<b>Total</b>	—

**6- List of references:**

**6.a. Basic materials:**

1. Junqueira Basic Histology. (2004)
2. Wheater's functional Histology (2005)

**6.b.2 Essential books (text books):**



-Gartner &Hiatt Atlas Histology (2000)

**6.c. Recommended books:**

-Mechiel ross text of histology (2000)

**6.d. Periodicals, Web sites, etc:**

6.d.1.<http://www.medscape.com>.

6.d.2.<http://www.pubmed.com>.

6.d.3.<http://master.emedicine.com/maint/cme.asp>.

6.d.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./ Mohamed Magdi Zaky***

***Head of Department: Prof Dr./ Omuma Mohammed***

***Date: 9 /2013.***



Benha University

Faculty of Medicine

Department of Human Anatomy and Embryology

## *Course Specification*

**Course title:** Molecular Biology

**(Code):** ANAT 603

**Academic Year (2013– 2014)**

### **A) Basic Information:**

- Department offering the course: - Medical Biochemistry
- Academic year of Master program of anatomy: 2013\_ 2014.
- Date of specification approval: Department council, date 9 / 2013
- Allocated marks: 75 marks
- Course duration: 15 weeks of teaching
- Teaching hours: -

	Hours / week	Total hours
1- Lectures/ small group discussion	1hs /week	15hs
2- Practical	1hs /week	45hs
<b>Total</b>	2hs /week	60hs

### **B) Professional Information:**

#### **1- Overall Aim of the Course:**



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

- To provide the advanced scientific knowledge essential to practice Cell Biology dealing with tissue processing
- To provide the advanced scientific knowledge essential for establishing & maintaining good researchers.
- To aware with basic principles of molecular biology
- To enable the students familiar with biotechnology methods and their clinical application.

## **2- Intended Learning Outcomes (ILOs):**

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

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

- 2.a.1. Describe the normal structure and function of the human body cells on the molecular level.
- 2.a.2 Point out the process of replication, Transcription, translation
- 2.a.3. Describe the component , regulation and abnormality of cell cycle
- 2.a. 4. Identify the cell signaling & altered cell behavior.
- 2.a.5. Describe the genetic code ,recombinant of DNA boitechniques associated with clinical implication
- 2.a.6.Describe principals of gene
- 2.a.7. Explain the causes, detection and consequences of genetic defects

### **2.b.Intellectual skills:**

*-By the end of the course, the student should be able to:*

- 2.b.1. Evaluate the molecular biology techniques.



2.b.2. Interpret results of DNA electrophoresis .

2.b.3. Interpret the photographs of electrophoresis

**2.c. Practical and Professional skills:**

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

2.c.1 Utilize the problem solving skills in a variety of situation

2.c.2. record results of DNA electrophoresis .

2.c.3 Practice basics of safety in laboratory.

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

*By the end of the course, the student 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 .



### 3- Course contents:

<b>Subject</b>	<b>Lecture/Tutorial / Small group discussion (hrs)</b>	<b>Practical/ (hrs)</b>	<b>Total (hrs)</b>	<b>% of Total</b>
1Nucleotides and nucleic acid chemistry	2	6	8	13%
2-Cell cycle :regulatory factors, Apoptosis, Oncogenes and Carcinogenesis	2	6	8	13%
3-DNA replication, Mutations and Repair telomere, telomerase	2	6`	8	13%
4- Gene Expression and Transcription	2	6	8	13%
5- Protein Synthesis and Modification	2	6	8	13%
6-Recombination DNA Technology	2	6	8	13%
7-Gene Therapy, Human genome	3	9	12	23.3%
<b>TOTAL</b>	<b>15</b>	<b>45</b>	<b>60</b>	<b>100%</b>

### 4- Teaching and learning methods:

#### METHODS USED:

- Small group discussions: Museum specimens, demonstration (slides photographs and video films), models and case study.
- Tutorials.
- Practical classes.
- Seminars.

#### TEACHING PLAN:

<b>Item</b>	<b>Time schedule</b>	<b>Teaching hours</b>
Lectures	1 h /week;	15hs
Practical	1hours / week	45hs



<b>Total</b>	2hours/week	60
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**5- Students Assessment methods:**

**5-A) ATTENDANCE CRITERIA:** Faculty by laws

**5-B) Assessment TOOLS:**

<b>Tool</b>	<b>Purpose (ILOs)</b>
Written examination	To assess knowledge and understanding, intellectual skills
Oral examination	To assess knowledge and understanding, intellectual skills, attitude and presentation.
Practical examination	To assess practical skills, knowledge and understanding, intellectual skills, general skills

**5-C) TIME SCHEDULE:**

<b>Examination</b>	<b>Time</b>
Final examination	May or September

**5-D) Weighting System:**

<b>Examination</b>	<b>Marks allocated</b>	<b>% of Total Marks</b>
a-Written	40	53.3%
b- Practical	25	33.3%
c- Oral	10	13.4%
<b>Total</b>	<b>75</b>	<b>100%</b>

**5-FORMATIVE ASSESSMENT:**



**5-E) Examinassions description:**

Examination	Description
1- Final exam: a- Written b- Practical c- Oral	Short QS., clinical cases ,filling spaces ,cross matching ,true &false ,MCQS. e.g. Do, identify e.g. How many sessions
<b>Total</b>	—

**6- List of references:**

**6.a . (text books):**

6.a.1. DM Vasudevan and Sreekumari (2007): Text boock of biochemistry for medical student 5 th edition.

**6.b. Recommended books:**

6.b.1. *Pamela Richard Havey and Denise Ferrier (2010):Lippinchot's illustrated Biochemistry,29 th ed.*

**6.c. Periodicals, Web sites, etc:**

6.c.1. <http://www.medscape.com>.

6.c.2. <http://www.pubmed.com>.

6.c.3. <http://master.emedicine.com/maint/cme.asp>.

6.c.4. <http://www.science direct.com>.

**7- Facilities required for teaching and learning:**

Facilities used for teaching this course include:





## توصيف برنامج -ماجستير التشريح الادمي والاجنة



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

***Course coordinator: Prof Dr. /Amal Idrees***

***Head of Department: Prof Dr. Amal abo el Fadel***

***Date : 9 / 2013***



Benha University

Faculty of Medicine

Department of Anatomy and Embryology

## *Course Specifications*

**Course title:** *Bioanthropology*

**(Code):** ANAT 604

**Academic Year (2013 – 2014)**

### **A) Basic Information:**

- Department offering the course: Anatomy & Embryology
- Academic year of master program of anatomy : 2013 - 2014
- Date of specification approval: Department council, date 9 / 2013
- Allocated marks: 75 marks
- Course duration: 15 weeks of teaching
- Teaching hours: -

	Hours / week	Total hours
1- Lectures/ small group discussion	1 h/week	15 h
2- Practical	1h/week	45 h
<b>Total</b>	<b>2 h/week</b>	<b>60 h</b>

### **B) Professional Information:**

#### **1- Overall Aim of the Course:**

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

- To provide the scientific knowledge essential to know the Origin of species, Stage of Morphological Growth , Human adjustment , Human



- adaptation and Distribution of variability.
- To provide the scientific knowledge essential I for establishing & maintaining good researchers.
  - To provide scientific knowledge essential for following the rules of medical ethics.
  - Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.
  - Life- long learning competencies necessary for continuous professional development.
  - Research education as related to medical practice & more advanced scientific researches.
  - 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, the student should be able to:

2.a.1. Describe the genetic population , genetic equilibrium , mutations ,gene flow and mating

2.a.2. Discuss the factors affecting the differential fertility rates.

2.a.3. Describe the normal growth and development of the human body

2.a. 4. Describe the stages of morphological Growth



2.a.5. Outline the human adjustment ,Human adaptation and Distribution of variability

**2.b. Intellectual skills:**

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

**2.b.1. Combine** the technical and investigational database to be proficient in anthropological 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 Variations of human being.

**2.c. Professional and practical skills:**

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

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

2.c.2 determine age and race effectively

**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- Course contents:**

<i>Subject</i>	<i>Lecture/Tutorial / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
Definition , objectives , Aims , Branches ,Methods &Application .	1	2	3	5%
Origin of species: -Genetic of population , genetic equilibrium -mutations -gene flow -mating -Amish. Factor affecting: differential fertility rates. Isolation: geographic, temporal &reproductive. Preadaptation , specialization , competition& extinction. Natural selection: variability , environment & habitat.	4	8	12	20%
Nature of human growth &development.	2	5	7	11.7%
Stage of Morphological Growth	3	5	8	13.3%
Pre-Adult Age Determination	1	4	5	8.3%
Secular Trend in Growth & Development	1	6	7	11.7%
Human adjustment.	1	5	6	10%
Human adaptation.	1	6	7	11.7%
Distribution of variability	1	4	5	8.3%
<b>TOTAL</b>	<b>15</b>	<b>45</b>	<b>60</b>	<b>100%</b>

**4- Teaching and learning methods:**

**METHODS USED:**

4.a .Lectures

4.b.Small group discussions: demonstration (slides ,photographs and video).



- 4.c.Tutorials.
- 4.d.Practical classes.
- 4.e.Seminars.

**TEACHING PLAN:**

Item	Time schedule	Teaching hours
Lectures	<u>1 h</u> /week	15hs
Practical	<u>1 hours</u> / week	45hs
<b>Total</b>	<b>2 hours/week</b>	<b>60hs</b>

**5- Students Assessment methods:**

**5-A) ATTENDANCE CRITERIA:** Faculty by laws

**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:**

Examination	Time
Final examination	May or September

**5-D) Weighting System:**

Examination	Marks allocated	% of Total Marks
a -Written	40	53.3%
b- Practical	25	33.3%
c- Oral	10	13.4%
<b>Total</b>	<b>75</b>	<b>100%</b>

**FORMATIVE ASSESSMENT:**



**5-E) Examinations description:**

Examination	Description
1- Final exam: a- Written b- Practical c- Oral	MCQs, Short essay Do, identify One session of 2 staff members
<b>Total</b>	—

**6- List of references:**

**6.a. Basic materials:**

- 6.a.1- Introduction to Physical Anthropology. Belmont, CA: Cengage Learning (2013)  
6.a. 2- *Human Biodiversity: Genes, Race, and History*. New York: Aldine de Gruyter. (1995)  
6.a.3-Plain Statements About Race”, *Science*, 83:511–513.

**6.b. Essential books (text books):**

- 1- *Human Heredity*, [Eden Paul](#) and [Cedar Paul](#), translators. New York: Macmillan,  
2- The New Physical Anthropology”, *Transactions of the New York Academy of Sciences*, Series II, 13:298–304.

**6.c. Recommended books:**

- 6.c.1- Remodelling the Human Way of Life: Sherwood Washburn and the New Physical Anthropology, in *Bones, Bodies, Behavior*:(1988)  
6.c.2-*Biological Anthropology*, of the *History of Anthropology*, v.5, G. Stocking, ed., Madison, Wisc., University of Wisconsin Press, pp. 206–259

**6.d. Periodicals, Web sites, etc:**

- 6.d.1.<http://www.medscape.com>.  
6.d.2.<http://www.pubmed.com>.  
6.d.3.<http://master.emedicine.com/maint/cme.asp>.  
6.d.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./ Saadia Ahamed Shalaby**

**Head of Department: Prof Dr./ Essam Mohamed Eid**

**Date: 8 / 9 /2013.**



Benha University

Faculty of Medicine

Department of Human Anatomy and Embryology

## *Course Specifications*

Course title: *Radiological Anatomy*

(Code): ANAT 605

Academic Year (2013 – 2014)

### **A) Basic Information:**

- Department offering the course: Anatomy & Embryology
- Academic year of master program of anatomy : 2013-2014
- Date of specification approval: Department council, date 9 / 2013
- Allocated marks: 75 marks
- Course duration: 15 weeks of teaching
- Teaching hours: -

	Hours / week	Total hours
1- Lectures/ small group discussion	1 h/week	15 h
2- Practical	1h/week	45 h
Total	2 h/week	60 h

### **B) Professional Information:**

#### **1- Overall Aim of the Course:**

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

To provide the scientific knowledge essential to interpret the anatomical structures in the radiological images .

- To provide the scientific knowledge essential I for establishing &





- maintaining good researchers.
- To provide the scientific knowledge essential for following the rules of medical ethics.
  - Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.
  - Life- long learning competencies necessary for continuous professional development.
  - Research education as related to medical practice & more advanced scientific researches.
  - 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, the student should be able to:

- 2.a.1. Describe the radiological films in all body systems**
- 2.a.2. Identify the radiolucent and opaque structures in radiological films .**
- 2.a.3. Describe the normal anatomical structures through the radiographs.**
- 2.a. 4. Differentiate between the normal and abnormal anatomical structures in radiographs.**
- 2.a.5. Outline the anatomical structures in different directions of radiographic films**

### **2.b. Intellectual skills:**

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

- 2.b.1. Combine** the technical and investigational database to be Proficient in radiological 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 variations of human being.

**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**

**2.c.4.** Respect the role and the contributions of other health care professionals regardless their degrees or rank .

**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.

**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:**

<i>Subject</i>	<i>Lecture/Tutorial / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
1-Introduction to radiological anatomy	1	2	3	5%
2-Radiology of the Skull and Brain	2	8	10	16.7%
3-Radiology of the Vertebral column & Spinal cord	1	5	6	10 %
4-Radiology of Thorax	2	5	7	11.7%
5-Radiology of Abdomen	2	4	6	10 %
6-Radiology of Pelvis , Neonatology	2	6	8	13.3%
7-Radiology of upper limb	2	5	7	11.7%
8-Radiology of lower limb	2	6	8	13.3%
9-Radiology of breast & Endocrine glands	1	4	5	8.3%
<b>TOTAL</b>	<b>15</b>	<b>45</b>	<b>60</b>	<b>100%</b>

**4- Teaching and learning methods:**

**METHODS USED:**



- 4.a .Lectures
- 4.b.Small group discussions: demonstration (slides ,radiographs and video films).
- 4.c.Tutorials.
- 4.d.Practical classes.
- 4.e.Seminars.

**TEACHING PLAN:**

Item	Time schedule	Teaching hours
Lectures	1 h /week	15hs
Practical	1 hours / week	45hs
<b>Total</b>	<b>2 hours/week</b>	<b>60hs</b>

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

**5-A) ATTENDANCE CRITERIA:** Faculty by laws

**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:**

Examination	Time
Final examination	May or September

**5-D) Weighting System:**

Examination	Marks allocated	% of Total Marks
a -Written	40	53.3%
b- Practical	25	33.3%
c- Oral	10	13.4%
<b>Total</b>	<b>75</b>	<b>100%</b>



## 5-FORMATIVE ASSESSMENT:

Student knows his marks after the Formative exams.

### 5-E) Examinaassions description:

Examination	Description
1- Final exam: a- Written b- Practical c- Oral	MCQs, Short essay Do, identify One session of 2 staff members
<b>Total</b>	—

### 6- List of references:

#### 6.a. Basic materials:

6.a.1-Applied Radiological Anatomy 3.8 out of 5 stars (4 ... Any rental and extension fees paid will be applied towards the buyout price of the book. Textbook Rental FAQ

6.a.2-An Atlas of Radiological Anatomy on Amazon.com. \*FREE\* shipping on qualifying offers.

#### 6.b. Essential books (text books):

6.b.1-Clinical and Radiological Anatomy of the Lumbar Spine 5e continues to offer practical, comprehensive coverage of the subject area in a unique single volume ..

6.b.2-Applied Radiological Anatomy for Medical Students, first published in 2007, is the definitive atlas of human anatomy, utilizing the complete range of imaging ..

#### 6.c. Recommended books:

6.c.1-Imaging Atlas of Human Anatomy. Book, February 2010, ... Netter's Concise Radiologic Anatomy. Book, February 2014, by Weber Notes on Anatomy and Oncology.

6.c.2-Applied Radiological Anatomy is an exhaustive yet practical imaging ...

#### 6.d. Periodicals, Web sites, etc:

6.d.1.<http://www.medscape.com>.

6.d.2.<http://www.pubmed.com>.

6.d.3.<http://master.emedicine.com/maint/cme.asp>.

6.d.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./ Saadia Ahamed Shalaby***

***Head of Department: Prof Dr./ Essam Mohamed Eid***

***Date: 8 / 9 /2013.***



Department of Human Anatomy and Embryology

**Course Specifications**

Course title: *Comparative Anatomy*

(Code): ANAT 606

Academic Year (2013 – 2014)

**A) Basic Information:**

- Department offering the course: Anatomy & Embryology
- Academic level: First part.
- Date of specification approval: Department council, date 9 / 2013
- Allocated marks: 75marks
- Course duration: 15 weeks
- Teaching hours: -

	Hours / week	Total hours
1`- Small group teaching	1hs/week	15h
2- Practical	1h/week	45/hs
Total	2 hs/week	60hs

**B) Professional information :**

**1- Overall Aims of the Program:**

*The overall goals of the program are:*

- To provide the students with advanced & up-to-date knowledge & skills of comparative anatomy.



- To enable students to correlate between vertebrates and non vertebrates .
- To offer life-long learning competencies necessary for continuous professional development.
- To offer advanced skills necessary for delivery of research work in the field of comparative anatomy.

## 2-Intended Learning Outcomes (ILOS):

### 2.a. Knowledge and Understanding:

*By the end of the program the student should be able to:*

**2.a.1. Describe** the vocabulary of comparative anatomy.

**2.a.2. Discuss** the basic morphological features ,functions of representative chordate systems

**2.a. 3. Explain** the evolutionary basis of morphological differences and similarities among vertebrate taxa.

**2.a.4.Explain how vertebrates** originated, their characteristic anatomical and physiological features.

### 2.b. Intellectual Skills:-

*By the end of the program the student should be able to:*

**2.b.1. Interpret** the factors affecting the development of vertebrate .

**2.b.2. Interpret** primary scientific literature to understand the vertebrate biology.





### **2.c. Practical and professional Skills:-**

***By the end of the program the student should be able to:***

**2.c .1 Prepare** The histological sections to show the structural changes in vertebrates through their evolution from fish to mammals

**2.c .2 Identify microscopically the** slides of various structures of vertebrate .

**2.c .3 Write** detailed reports on the morphology of vertebrates images

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

***By the end of the program the student should be able to:***

**2.d..1. Communicate** effectively with teaching stuff and colleagues.

**2.d.2.Demonstrate** appropriate attitude towards teaching stuff and colleagues.

**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.

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

### **3- Course contents:**



<i>Subject</i>	<i>Tutorial / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
1- Introduction and Concepts Vertebrate body: notochord, pharynx, CNS, vertebrae.	1	3	4	6.6%
2-chordate:Pisces, line of vertebro- evolution	1	3	4	6.6%
3-Prochordate : urochordate , cephalochordate , chordate relationship	1	3	4	6.6%
4-Early Vertebrates Morphogenesis Egg, Fertilization, Gastrulation, Extraembryonic membranes	2	6	8	13,2%
5-Skin:Fishes,Agnathans, birds, Mammals	1	3	4	6,6%
6-Skulls: Neuro-cranium, Visceral cranium, Derma cranium	2	6	8	13.2%
7- Appendicular skeleton , Muscles, Digestive system	2	6	8	13.2%
8- Respiratory system, Vascular system	2	6	8	13.2%
9- Urogenital system, Nervous system, Sense organs system	2	6	8	13.2%
10-Endocrine system	1	3	4	6.6%
<b>TOTAL</b>	<b>15</b>	<b>45</b>	<b>60</b>	<b>100%</b>

**4- Teaching and learning methods:**

**METHODS USED:**

- 1.Small group discussions: Seminars
2. Practical



3. Problem solving.

**TEACHING PLAN:**

Item	Time schedule	Teaching hours
Small group teaching	1hs /week	15hs
Practical	1hs /week	45hs
Total	2hs /week	60hs

***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	To assess practical skills

**5-C) TIME SCHEDULE:**

Examination	Time
Final examination	May or September

**5-D) Weighting System:**

Examination	Marks allocated	% of Total Marks
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## توصيف برنامج -ماجستير التشريح الادمي والاجنة



Final exam:		
a -Written	40	53.3 %
c -Practical	25	33.3%
b- Oral	10	13.4%
<b>Total</b>	<b>75</b>	<b>100%</b>

### 5-FORMATIVE ASSESSMENT:

Student knows his marks after the Formative examinations .

### 5-E) Examinassions description:

Examination	Description
Final exam:	
a- Written	Short QS, clinical cases , filling spaces , cross matching , true and false , MCQS.
b- Oral	Many sessions
6- Assignments & other activities	e.g. Assignments, projects, etc

### 6- List of references:

#### 6.1. Essential books (text books):

- **Kardong, K. V. ( 2012).** Vertebrates: Comparative anatomy, function, and evolution. 6th edition. McGraw Hill Publ., Boston, MA.
- **Fishbeck, D.W. and A. Sebastiani. (2008).** Comparative anatomy: Manual of Vertebrate Dissection. 2nd edition. Morton Publishing Co., CO

#### 6.2. Recommended books:

- **Van de Graff, K. M. and J. L. Crawley. ( 2005):** A photographic atlas for the zoology laboratory. 5th. ed. Morton Publishing Co., CO 154 pp.



**6.3. Periodicals, Web sites, etc:**

6.3.1.<http://www.medscape.com>.

6.3.2.<http://www.pubmed.com>.

6.3.3.<http://master.emedicine.com/maint/cme.asp>.

6.3.4.<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: Saadia Ahmed Shalaby***

***Head of Department: Prof. Dr./ESSAM MOHAMED EID***

***Date: 8 / 9 / 2013***



Department of Human Anatomy & Embryology

*Course Specification*

Course title: Advanced Neuroanatomy

(Code): ANAT 607

Academic Year (2013 – 2014)

- Department offering the course: Anatomy & Embryology
- Academic level: First part.
- Date of specification approval:
  - Department council, date 8 / 9 / 2013
  - Faculty council , date 15 / 9 / 2013 .

**A) Basic Information:**

- Allocated marks: 75marks
- Course duration: 15 weeks
- Teaching hours:

	Hours / week	Total hours
1-Tutorial, Small group teaching	1`hs/week	15hs
2- practical	1hs/week	45hs
Total	2hs/week	60hs

**B) Professional information :**

**1- Overall Aims of the Program:**



***The overall goals of the program are:***

- To provide students with advanced & up-to-date knowledge & skills of advanced neuroanatomy and their related medical sciences.
- To enable students to correlate between normal neuroanatomy and their congenital malformation.
- To enable the students to prepare the nervous specimens for teaching injection techniques and how to prepare a museum jars.
- To offer life-long learning competencies necessary for continuous professional development
- To offer advanced skills necessary for delivery of research work in the field of Human neuroanatomy .

**2-Intended Learning Outcomes (ILOS):**

**2.a. Knowledge and Understanding:**

***By the end of the program the student should be able to:***

***2.a.1. Illustrate*** the detailed gross anatomy of different parts of nervous system .

***2.a.2 Describe the development*** as a key to catch the abnormal nervous system.

***2.a.3 Explain*** the anatomical relations in different parts of the nervous



system .

**2.a. 4 Identify** terms of different parts of nervous system.

**2.a.5 Describe** the morphology , location ,vasculature & relations of different parts of nervous system.

**2.a.6 Explain** the different variations of nervous system to give an idea for the clinical application of anatomical facts.

**2.a.7 Describe** different techniques of the different specimen's preparation.

**2.a.8 Describe** the details of surgical & applied anatomy in neuroanatomy

**2.a.9 Outline** the impact of fine structure of the different parts of the nervous system .

**2.a.10 Describe** the morphometry of the brain and spinal cord.

**2.a.11 Explain** the radiological anatomy to know structure of deeper details.

**2.a.12 Describe** the surface anatomy of the important parts in the brain.

**2.a.13 Illustrate** the body parameter in successive age advances to give a way for the study of the growth &development brain and spinal cord .

**2.a.14 Highlight** the teratogenic factors & their effects on the different parts of nervous system.

### **2.b. Intellectual Skills:-**

***By the end of the program the student should be able to:***

**2.b.1. Interpret** results of radiological and surface anatomy.

**2.b.2. Interpret** the developmental causes of anomalies of nervous





system.

**2.b.3 Evaluate** the danger of environmental factors on the development of brain and spinal cord.

**2.b.4. Design** a systematic approach for the different surgical incisions.

**2.b.5. Evaluate** according to developmental base the correlation between the normal and abnormal gross structure.

**2.c. Practical and professional Skills:-**

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

**2.c .1 Prepare** the embryonic specimen, dissected parts of the brain and spinal cord

**2.c ..2. Prepare** the age related embryos by using serial sections.

**2.3.3 Process & stain** the different parts of nervous system.

**2.c.4. Write** detailed reports on the different radiographic films from anatomical point of view.

**2.c.5. Perform** a cross sectional anatomical specimens of the brain and spinal cord .

**2.c.6. Prepare** the box slide for different CNS specimens.

**2.c.7 Prepare** the different museum specimen and models by casting & die injection.

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

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

**2.d..1. Communicate** effectively with teaching stuff and colleagues.

**2.d.2. Demonstrate** appropriate attitude towards teaching stuff and colleagues.



**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.**

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

**3- Course contents:**

<i>Subject</i>	<i>Tutorial / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
1-Introduction , neurons , meninges , subarachnoid space ,C.S.F.	1	3	4	6.7%
2-Vertebral canal , intervertebral foramen , spinal cord , spinal meninges ,internal structures of spinal cord	2	3	5	8.3%
3-Gross features of brain stem , internal structure ,	2	3	5	8.3%
4-Cerebellum ,4 <sup>th</sup> ventricle , internal structure	2	4	6	10%
5-Insula ,limbic system , olfactory pathway	1	3	4	6.7%



6-Diencephalon ,3 <sup>rd</sup> ventricle, internal structure	1	6	7	11.7%
7-Cerebrum :gross anatomy , lateral ventricle , internal structure of cerebrum	2	6	8	13.3%
8-Blood supply of the brain and spinal cord	1	3	4	6.7%
9-Functional components of peripheral nerves	1	3	4	6.7%
10-Tractology	1	6	7	11.7%
11-Autonomic nervous system	1	5	6	10%
<b>TOTAL</b>	<b>15</b>	<b>45</b>	<b>60</b>	<b>100%</b>

**4- Teaching and learning methods:**

**METHODS USED:**

1. Small group discussions: Seminars
2. Problem solving.

**TEACHING PLAN:**

Item	Time schedule	Teaching hours
-Small group teaching	<u>1hs</u> /week	15hs
-practical	<u>1hs</u> /week	45hs
<b>Total</b>	<b>2hs /week</b>	<b>60hs</b>

**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.

**5-C) TIME SCHEDULE:**

Examination	Time
Final examination	May or September

**5-D) Weighting System:**

Examination	Marks allocated	% of Total Marks
Final exam:		
a -Written	40	53.3 %
b- Oral	10	13.4%
c- Practical &Log book	25	33.3%
<b>Total</b>	<b>75</b>	<b>100%</b>

**5-FORMATIVE ASSESSMENT:**

**5-E) Examinassions description:**

Examination	Description
Final exam:	
a- Written	Short QS, clinical cases , filling spaces , cross matching , true and false , MCQS.
b- Oral	Many sessions



6- Assignments & other activities	e.g. Assignments, projects, etc
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**6- List of references:**

**6.1. Basic materials:**

6.1.2. Museum and Practical books.

**6.2. Essential books (text books):**

*Standring, S.; Borley, N.R.; Collins, P.; Crossman, A.R.; Gatzoulis, M.A.; Healy, J.C.; Johnson, D.; Mahadevan, V. and Wigley, C.B. (2008): Gray's anatomy, 40<sup>th</sup> ed., Churchill Livingstone, Edinburg, London*

**6.3. Recommended books:**

*Chummy, S.S. (2012): Last's Anatomy, Regional and applied. Pub. Churchill Livingstone, Edinburgh, London, New York. 10<sup>th</sup> ed.,*

**6.4. 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./Saadia Ahmed Shalaby**

**Head of department Prof. Dr./ESSAM MOHAMED EID**

**Date: 9/ 2013**



Benha University

Faculty of Medicine

Department of Human Anatomy & Embryology

## *Course Specification*

Course title: Basic genetics

(Code): ANAT 608

Academic Year (2013– 2014)

### A) Basic Information:

- Department offering the course: -Histology & Cell Biology
- Academic year of MSC. program of anatomy: 2013 - 2014.
- Date of specification approval: Department council, date 9 / 2013
- Allocated marks: 75 marks
- Course duration: 15 weeks of teaching
- Teaching hours:-

	Hours / week	Total hours
1- Lectures/ small group discussion	1h /week	15hs
2- Practical	1 h /week	45hs
<b>Total</b>	2hs /week	60hs

### B) Professional Information:

#### 1- Overall Aim of the Course:

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

- To provide the advanced scientific knowledge of basic genetics



essential to know the genetic aberrations.

- To provide the advanced scientific knowledge essential for establishing & maintaining good researchers
- To provide the advanced scientific knowledge essential for following the rules of medical ethics.
- Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.
- Life- long learning competencies necessary for continuous professional development.

## **2- Intended Learning Outcomes (ILOs):**

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

**By the end of the course, the student should be able to**

**2.a.1. Describe the chromosomes and their component structures and function, chromosomal aberrations**

**2.a.2. Identify the normal structure and function of the human body cells at biochemical levels (including the principles of genetics).**

**2.a.3. Describe the Genetics and human development, Genetic markers and genetic mapping.**

**2.a.4. Explain the clinical application of Genetics**

### **2.b. Intellectual skills:**

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

**2.b.1. Interpret Immunogenesis and clinical application**

**2.b.2. Correlate between the genetic defects and congenital**



**abnormality**

**2.b.3 .Explain the causes and consequences of genetic defects**

**2.c. Practical and Professional skills:**

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

**2.c .1 Identify immunoflourscent stain and clinical use in diagnosis**

**2.c .2 Demonstrate the more recent in researches in stem cells and Basic Genetics.**

**2.c..3. enable the candid to read immunological stain reports**

**2.c.4. Complies with the requirements of the national code of ethics issued by the Egyptian Medical Syndicate.**

**2.c.5. Conduct counseling sessions for more advances in researches.**

**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:

<i>Subject</i>	<i>Lecture/Tutorial / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
1-cell cycle and cell division (mitosis meiosis) -Gametogenesis	3	9	12	20%
2--Cytogenetics : - Chromosomes :structure ,chromosomal study& karyotyping , chromosomal bands , banding, fluorescence in situ hybridization , Sex chromatin , Barr body ,chromosomal aberrations	3	9	12	20%
3-Gentics and human development, somatic cell genetic ,Genetic markers, Twins studies, mapping and identifying gene	3	9	12	20%
4- Genetic in medicine:Immunogenesis,Genetic factor in common diseases	3	9	12	20%
5-ClinicalGenetic : Congintal abnormality, chromosome disorders, single gene disorders	3	9	12	20
<b>TOTAL</b>	15	45	60	100%

4- Teaching and learning methods:

**METHODS USED:**

- Small group discussions: Museum specimens, demonstration



## توصيف برنامج -ماجستير التشريح الادمي والاجنة



(slides photographs and video films), models and case study.

- Tutorials.
- Practical classes.
- Seminars.

### **TEACHING PLAN:**

Item	Time schedule	Teaching hours
Lectures	1 h /week;	15hs
Practical	1 hours / week	45hs
<b>Total</b>	2 hours/week	60

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

**5-A) ATTENDANCE CRITERIA:** Faculty by laws

### **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:**

Examination	Time
Final examination	May or September

### **5-D) Weighting System:**



Examination	Marks allocated	% of Total Marks
a-Written	40	53.3%
b- Practical	25	33.3%
c- Oral	10	13.4%
<b>Total</b>	<b>75</b>	<b>100%</b>

### 5-FORMATIVE ASSESSMENT:

Student knows his marks after the Formative exams.

### 5-E) Examinassions description:

Examination	Description
1- Final exam:	
a- Written	Short QS., clinical cases ,filling spaces ,cross matching ,true &false ,MCQS.
b- Practical	e.g. Do, identify
c- Oral	e.g. How many sessions
<b>Total</b>	—

### 6- List of references:

#### 6.a . (text books):

6.a.1. **Junqueira Basic Histology :Junquera, L.C. and Carneiro, J. (2005):** Digestive tract. In: Basic histology, text and atlas, 11<sup>th</sup> ed., Mc Graw – Hill, New York, Chicago, Toronto.

6.a.2. **Gartner &Hiatt Atlas Histology2001) : Gartner, L.P. and Hiatt, J. (2001):** Color text book of histology: Chapter 18, Digestive system, Gland. Lippincott. 3<sup>rd</sup> ed., Williams and Wilkins. Philadelphia. London.



6.a.3. ***Wheater's functional Histology (2006)***: Barbara Young, James S. Lowe, Alan Stevens and John W. Heath *Wheater's Functional Histology: A Text and Colour Atlas, 5th Edition*

**6.b. Recommended books:**

6.b.1. *Mechiel Ross text of histology (2011) : Michael H. Ross and Wojciech Pawlina* , Histology A text and Atlas, sixth edition, chapter 18 Lippincott, Philadelphia, New York ,London and Tokyo

**6.c. Periodicals, Web sites, etc:**

6.c.1. <http://www.medscape.com>.

6.c.2. <http://www.pubmed.com>.

6.c.3. <http://master.emedicine.com/maint/cme.asp>.

6.c.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. Mohamed Magdi Zaky***

***Head of Department: Prof Dr. OMUMA MOHAMMED***

**9 / 2013**



Benha University

Faculty of Medicine

Department of Anatomy & Embryology

## *Course Specification*

Course title: Human anatomy  
(Code) ANAT 609  
Academic Year (2013 – 2014)

### **A) Basic Information:**

- Department offering the course: Anatomy & Embryology
- MSC program: 2<sup>nd</sup> part .
- Date of specification approval: Department council Date 9/ 2013
  - Allocated marks: 700 marks
  - Course duration 30 weeks of teaching
  - Teaching hours :-

	Hours / week	Total hours
1- Lectures	9hs /w	135 hs
2- Practical	4hs/w	180 hs
Total	13hs/w	315hs

### **B) Professional Information:**

#### **1- Overall Aim of the Course:**



- The aim of the program is to provide the postgraduate educational experience necessary for further practice in anatomy.
- To educate postgraduates about the experimental embryology to give them the key stone in understanding the anatomy and congenital malformation.
- To enable the postgraduates to practice the principles of preparation the anatomical regional specimens for teaching injection techniques for freshly obtained bodies and how to prepare a museum jars

## **2- Intended Learning Outcomes (ILOs):**

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

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

***2.a.1 Describe*** the morphology, location, vasculature, innervations & relations of different parts of human body.

***2.a.2 Classify*** the most common variations to give an idea for the clinical application.

***2.a.3 Point out*** the impact of fine structure of the anatomical components.

***2.a.4 Describe*** the most important technique of specimen preparation.

***2.a.5 Describe*** the details of surgical & applied anatomy.

***2.a.6 Explain*** the radiological anatomy to know structure of deeper details.

***2.a.7 Illustrate*** the surface anatomy of the visible and deeper structures of the body.



**2.b. Intellectual Skills:**

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

**2.b.1. Analyze the different techniques ,stains, and chemicals for preservation & study of the anatomical specimen and tissues**

**2.b.2.. Interpret result of radiological and surface anatomy**

**2.b.3.Solve problem environmental factors on the development of body systems.**

**2.c. Practical and professional Skills**

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

**2.c.1 Prepare the embryonic specimen, dissected regions of human body and human organs**

**2.c.2 Prepare the age related embryos by using serial sections.**

**2.c .3 Study of anatomy on a radiographic films.**

**2.c.4 Perform a cross sectional anatomical specimens.**

**2.c.5 prepare the box slide for CNS.**

**2.c.6 prepare the museum specimen and models by casting & die injection.**

**2.c. Professional Attitude and Behavioral kills:**



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

- 2.c.1** Communicate effectively with teaching staff and colleagues.
- 2.c.2.** Respects appropriate attitude towards teaching staff and colleagues
- 2.c.3.** Appropriate ethical and professional education necessary for demonstrating appropriate attitudes with students and colleagues.

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

*By the end of the course, the student 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.**Establish effective interpersonal relationship to Communicate ideas and arguments .
- 2.d.4.**Retrieve, manage, and manipulate information by all means, including electronic means.
- 2.d.5.**Present information clearly in written, electronic and oral forms.
- 2.d.6.**Establish effective interpersonal relationship to Communicate ideas and arguments.
- 2.d.7.**Apply the principles of statistical methods for collection, presentation & analysis of all types of data .

**3- Course contents:**





<i>Subject</i>	<i>Tutorial / Small group discussion (hrs)</i>	<i>Practical/ (hrs)</i>	<i>Total (hrs)</i>	<i>% of Total</i>
<b>1-General Anatomy</b>				
1-Definitions , terms of positions & planes, movements	1	1	2	0.6%
2-Bones: names , structure, functions classifications, general features ,blood supply -Cartilage : features &types	3	3	6	1.9%
3 -Joints :definition , classifications , structure of synovial js. -Muscles : types , characters of skeletal muscles -skin : features - fascia :form & features	2	2	4	1.3%
4-Nervous system: parts of CNS, cranial & spinal nerves, autonomic nervous system	2	2	4	1.3%
5-Blood vessels : characters of arteries and veins, types of anastomosis lymphatic system :characters of lymph vessel, lymph nodes, lymph	2	2	4	1.3%
<b>Total</b>	<b>10</b>	<b>10</b>	<b>20</b>	<b>6.4%</b>
<b>2-Upper Limb</b>				
1-Pectoral region and breast , Axilla, Back ,Shoulder region	2	2	4	1.4%
2-Superficial veins of U.L. ,cutaneous nerves , Compartments of arm, Anastomoses around elbow, Cubital fossa & compartments of forearm	4	5	9	2.9%
3- Dorsum of hand , palm of hand	3	4	7	2.2%
4-Joints of U.L. : shoulder joint, joints of shoulder girdle elbow joint, radio-ulnar joint ,wrist joint, joints of fingers	2	3	5	1.6%
5-nerve injuries, collateral circulation in upper limb	2	3	5	1.6%
6-Surface anatomy of structure in upper limb &Radiological anatomy	2	3	5	1.6%
<b>Total</b>	<b>15</b>	<b>20</b>	<b>35</b>	<b>11.2%</b>
<b>3-Lower Limb</b>				
1-Front of thigh and its medial side	3	3	6	1.9%
2-Gluteal region	2	3	5	1.6%
3-Back of thigh and Popliteal fossa	2	3	5	1.6%



4-anterior and lateral compartments of leg and dorsum of foot		2	3	5	1.6%
5-Posterior compartment of leg and sole of foot		2	3	5	1.6%
6-Joints of lower limb and Radiology		2	3	5	1.6%
7-Surface anatomy and Applied anatomy		2	2	4	1.3%
<b>Total</b>		<b>15</b>	<b>20</b>	<b>35</b>	<b>11.2%</b>
<b>4-Thorax</b>					
1-Thoracic cage, thoracic wall, intercostals spaces, azygos system		2	3	5	1.6%
2-Mediastinum and its divisions (superior ,anterior ,middle and posterior mediastinum )		2	3	5	1.6%
3-Lung and pleurae		3	4	7	2.2%
4-Heart and pericardium		3	4	7	2.2%
5-Large arteries: aorta, pulmonary trunk ,big veins ,nerves ,tubes (trachea, oesophagus , thoracic duct ,lymph nodes, joints and applied anatomy		3	4	7	2.2%
6-Joints of thorax ,surface anatomy and applied anatomy ,Radiological anatomy		2	2	4	1.3%
<b>Total</b>		<b>15</b>	<b>20</b>	<b>35</b>	<b>11.2%</b>
<b>Abdomen</b>					
1-Anterior abdominal wall, rectus sheath, inguinal canal and male external genitalia		3	5	8	2.6%
2-Peritoneum , classification of peritoneal folds, lesser sac ,abdominal oesophagus and stomach		3	5	8	2.6%
3-Small intestine (duodenum ,jejunum & ilium) ,large intestine (caecum ,appendix ,colon and colic flexures )		3	5	8	2.6%
4-Liver, biliary system ,spleen and pancreas		3	5	8	2.6%
5-Arterial supply of G.I.T. portal system		2	3	5	1.6%
6-Kidney ,ureters and suprarenal glands		2	3	5	1.6%



## توصيف برنامج -ماجستير التشريح الادمي والاجنة



7-Diaphragm ,muscles of posterior abdominal wall, abdominal aorta , I.V.C., lymph nodes ,lumbar plexus and autonomic fibers		2	2	4	1.3%
8-Joints of lumbar vertebrae ,surface anatomy ,applied anatomy ,Radiological anatomy		2	2	4	1.3%
<b>Total</b>		<b>20</b>	<b>30</b>	<b>50</b>	<b>15.9%</b>
<b>6-Pelvis</b>					
1-Arrangement of pelvic organs , pelvic peritoneum , pelvic fascia ,pelvic muscles ,pelvic vessels ,pelvic nodes and pelvic nerves.		2	4	6	1.9%
2-Distal part of G.I.T. (rectum and anal canal )and urinary system (pelvic part of ureter ,urinary bladder and urethra )		2	3	5	1.6%
3-Genital systems in pelvic cavity in male and female		2	3	5	1.6%
4-Perineum (ischioanal fossa and urogenital triangle ,pudendal nerve and internal pudendal vessels		3	3	6	1.9%
5-Bony pelvis ,Joints of pelvis , Applied anatomy		1	2	3	0.9%
<b>Total</b>		<b>10</b>	<b>15</b>	<b>25</b>	<b>7.9%</b>
<b>7-Head and Neck</b>					
1-Face ,scalp ,parotid gland		3	4	7	2.2%
2-Temporal , infratemporal regions , tempromandibular joint and styloid apparatus		4	5	9	2.9%
3-Cranial cavity, Dura ,dural sinuses and pituitary gland		2	3	5	1.6%
4-Orbit and orbital contents		3	4	7	2.2%
5-Nose ,Nasal cavity and paranasal sinuses		2	3	5	1.6%
6-External ear ,middle ear & inner ear		2	3	5	1.6%
7-Surface landmark, Fascia of neck , triangles of neck ,posterior triangle		2	3	5	1.6%
8-Anterior triangle ,submandibular region, thyroid and parathyroid		3	4	7	2.2%
9-Blood vessels of H&N ,Cranial nerves and cervical nerves.		3	4	7	2.2%



## توصيف برنامج -ماجستير التشريح الادمي والاجنة



10-Oral cavity ,tongue, palate, pharynx ,larynx ,trachea ,oesophagus		3	3	6	1.8%
11-lymphatic drainage of H&N, Joints of neck		1	2	3	0.9%
12-Surface anatomy , Applied anatomy and Radiological anatomy		2	2	4	1.3%
<b>Total</b>		<b>30</b>	<b>40</b>	<b>70</b>	<b>22.2%</b>
<b>8-Neuroanatomy</b>					
1-Introduction , neurons , meninges , subarachnoid space ,C.S.F.		2	2	4	1.3%
2-Vertebral canal , intervertebral foramen , spinal cord , spinal meninges ,internal structures of spinal cord		2	2	4	1.3%
3-Gross features of brain stem , internal structure ,		2	3	5	1.6%
4-Cerebellum ,4 <sup>th</sup> ventricle , internal structure		2	3	5	1.6%
5-Insula ,limbic system , olfactory pathway		1	2	3	0.9%
6-Diencephalon ,3 <sup>rd</sup> ventricle, internal structure		3	3	6	1.8%
7-Cerebrum :gross anatomy , lateral ventricle , internal structure of cerebrum		2	3	5	1.6%
8-Blood supply of the brain and spinal cord		2	2	4	1.3%
9-Functional components of peripheral nerves.		1	2	3	0.9%
10-Tractology		2	2	4	1.3%
11-Autonomic nervous system		1	1	2	0.6%
<b>TOTAL</b>		<b>20</b>	<b>25</b>	<b>45</b>	<b>14.3%</b>
<b>TOTAL</b>					
<b>TOTAL</b>		<b>135</b>	<b>180</b>	<b>315</b>	<b>100%</b>

#### 4- Teaching and learning methods:



### **METHODS USED:**

Modified Lectures  
Small group discussions  
Problem solving  
Practical classes

### **TEACHING PLAN:**

Item	Time schedule	Teaching hours
Lectures	3 times/week each time =3 hs	135 hs
Practical	4 hours / week	180 h
<b>Total</b>	<b>13 hours/week</b>	<b>315 h</b>

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

#### **5-A) ATTENDANCE CRITERIA:**

1. Log book.

#### **5-B) Assessment TOOLS:**

Tool	Purpose (ILOs)
Written examination	To assess knowledge and understanding and intellectual skills
Oral examination	To assess knowledge and understanding and intellectual skills and how to make a decision.
Practical examination	To assess practical skills and intellectual

#### **5-C) TIME SCHEDULE:**

Examination	Week
1- First examination	May or September
2- Second examination	June or October

#### **5-D) Weighting System:**



Examination	Marks allocated	% of Total Marks
1- First exam. a- Written b- Practical c- Oral	<b>300</b> 140 100 60	30%
1- Second exam. a- Written b- Practical c- Oral	<b>700</b> 350 250 100	70%
<b>Total</b>	<b>1000</b>	<b>100%</b>

- The minimum passing & Passing grades (Faculty bylaws).  
Passing grades are: EXCELLENT >85%, VERY GOOD 75- <85%,  
GOOD 65- <75% and FAIR 60-<65%.

#### **FORMATIVE ASSESSMENT:**

A postgraduate knows his marks after the Formative exams.

#### **5-E) Examinassions description:**

Examination	Type	Description
Final Examination	1. Written	A three-hour written paper composed of short essay , clinical cases , completion ,cross matching , MCQs. (two papers-3 hours each)
	2. Practical	Spots 10 spots including slides & Bone, On each specimen, a small question should be answered (quiz). Dissection.
	3. Oral	One oral examination station with 2 staff members .

#### **6- List of references:**

##### 6.1- Basic materials:

- Gray's anatomy : Susan Standring et-al 2010

##### 6.2- Essential books (text books):



-Last :Anatomy regional & applied 2006.

-T.W. Sadler :Medical embryology 2010

-Carpenter's: Human Neuroanatomy.2000

6.3- Recommended books:

- Cunningham:Romances,2006

-Keith Moore &Persaud :before we are born,2008

-BruceCarlson:Humanembryology&development,2009

6.4- Periodicals, Web sites, ... etc: [www.bfom.edu.eg](http://www.bfom.edu.eg).

**7- Facilities required for teaching and learning:**

Facilities used for teaching this course include:

- Lecture halls: 1
- Small group classes
- Laboratory:1
- Information technology / AV aids
- Models etc

**Course coordinator: Prof. Dr. / SADIA AHAMED SHALABY**

**Head of Department: Prof Dr./ESSAM MOHAMED EID**

**Date: 8 / 9 / 2013**

**الملحقات**



## توصيف برنامج -ماجستير التشريح الادمي والاجنة



ملحق ١ : Academic standard of the program

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

ملحق 3: Benchmarks (المعايير المرجعية الخارجية)

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

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 التشريح والاجنة

### وثيقة المعايير الأكاديمية المرجعية لبرنامج ماجستير التشريح الادمي والاجنة

#### Academic Reference Standards (ARS) for Master Degree in Anatomy & Embryology

##### 1-Graduate attributes : مواصفات الخريج

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

1-To offer basic administrative skills necessary for delivery of research services in the field of anatomy and embryology

2-To provide students with necessary knowledge & skills of the anatomy ,experimental embryology and related basic medical sciences as histology ,radiological anatomy ,comparative anatomy , anthropology and genetics to understand the anatomy and congenital malformation of human body.

3-To provide students with basic knowledge for the preparation of different anatomical specimens and injection techniques for freshly obtained bodies and how to prepare a museum jars.

4-To offer lifelong learning competencies necessary for continuous professional development in anatomy and embryology.

##### ٢ - المخرجات التعليمية المستهدفة من البرنامج :

#### 2-Intended Learning Outcomes (ILOS):

##### 2.a. Knowledge and Understanding : ٢.أ - المعرفة والفهم :

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

**2.a.1. Describe** the gross anatomy of the different body regions & that of neuroanatomy.

**2.a.2. Explain** the development as a key to catch normal and abnormal anatomy.

**2.a.3. Discuss** the anatomical relations in different parts and regions of the human body.

**2.a.4. Identify the** terms and planes and movements of different parts and regions of human body.

**2.a.5. Describe** the morphology, location, vasculature and innervations of different parts of human body.

**2.a.6 . Describe** the most recent important techniques of specimen preparation.

**2.a.7. Know** the details of surgical & applied anatomy.

**2.a.8. Recognize** the impact of fine structure of the anatomical components.

**2.a.9. Discuss** the measurements the different parts of the human body .

**2.a.10. Recognize** the radiological anatomy to know structure of deeper details.

**2.a.11. Demonstrate** the surface anatomy of the visible and deeper structures of the body.

**2.a.12. Mention** the body parameter in successive age advances to give a way for the study of the growth & development.

**2.a.13. Categorize** the teratogenic factors & their effects on the genetics and molecular biology.

## **2.b. Intellectual Skills:**

## **2. ب - القدرات الذهنية :**

*On successful completion of the program, the graduate will be able*

*to:*

**2.b.1. Interpret** the results of radiological and surface anatomy.

**2.b.2. Correlate** between the developmental basis and its related anatomical facts including the teratogenic factors.

**2.b.3 Appreciate** the danger of the environmental factors on the development of body systems.

**2.b.4. Formulate** a systematic approach for different surgical incisions.

**2.b.5. Correlate** between the normal and abnormal gross structure in the different developmental ages.

**2.b.6.Explain** the causes of genetic defects .

**2.b.7.Interpret** the developmental causes of nervous system .

**2.b.8.Evaluate** the variations of human being .

**2.b.9.Combine** the technical and investigational database to proficient in histological problem solving .

## **2.c. Practical and professional Skills:**

## **2. ج . مهارات مهنية وعملية**

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

**2.c .1 Prepare** the embryonic specimen, dissected regions of human body and human organs

**2.c ..2. Prepare** the histological sections to show the structural changes in vertebrate .

**2.c.3 Process & stain the specific tissues specimen and report the immunological structures .**

**2.c .4. Perform anthropometric techniques & methods.**

**2.c.5. Write reports about different anatomical regions and on a radiographic films.**

**2.c.6 Perform a cross sectional anatomical specimens.**

**2.c.7 prepare the box slide for CNS specimens.**

**2.c.8 Prepare the museum specimen and recognize the molecular biology techniques .**

2.2 . 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 with teaching stuff and colleagues.

**2.d..2. Demonstrate** appropriate attitude towards teaching stuff and colleagues.

**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. Establish** life-long self-learning required for continuous professional development.

اعتماد مجلس القسم رقم ( ٢٣٧ ) بتاريخ ٨ / ٦ / ٢٠١٣

رئيس مجلس القسم

أ.د. / عصام عيد

اعتماد مجلس الكلية ٣٥٤ بتاريخ ١٦/٦/٢٠١٣

## ملحق 2

### المعايير القياسية العامة لبرامج قطاع الدراسات العليا برامج الماجستير - تخصص التشريح والاجنة

#### ١ - مواصفات الخريج

- خريج برنامج الماجستير فى تخصص التشريح والاجنة يجب أن يكون قادرا على:
- ١-١ إجادة تطبيق أساسيات ومنهجيات البحث العلمى واستخدام أدواته المختلفة
  - ٢-١ تطبيق المنهج التحليلى واستخدامه فى مجال تخصص التشريح والاجنة
  - ٣-١ تطبيق المعارف المتخصصة ودمجها مع المعارف ذات العلاقة فى ممارسته المهنية
  - ٤-١ إظهار وعيا بالمشاكل الجارية والرؤى الحديثة فى مجال تخصص التشريح والاجنة
  - ٥-١ تحديد المشكلات المهنية وإيجاد حلول لها
  - ٦-١ إتقان نطاق مناسب من المهارات المهنية المتخصصة واستخدام الوسائل التكنولوجية المناسبة بما يخدم ممارسته المهنية
  - ٧-١ التواصل بفاعلية والقدرة على قيادة فرق العمل
  - ٨-١ اتخاذ القرار فى سياقات مهنية مختلفة
  - ٩-١ توظيف الموارد المتاحة بما يحقق أعلى استفادة والحفاظ عليها
  - ١٠-١ إظهار الوعى بدوره فى تنمية المجتمع والحفاظ على البيئة فى ضوء المتغيرات العالمية والاقليمية
  - ١١-١ التصرف بما يعكس الالتزام بالنزاهة والمصداقية والالتزام بقواعد المهنة
  - ١٢-١ تنمية ذاته أكاديميا ومهنيا وقادرا على التعلم المستمر

#### ٢ - المعايير القياسية العامة

##### ٢-١ المعرفة والفهم :

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج على فهم ودراية بكل من :
- ١-١-٢ النظريات والاساسيات المتعلقة بمجال التعلم وكذا فى المجالات ذات العلاقة
  - ٢-١-٢ - التأثير المتبادل بين الممارسة المهنية وانعكاسها على البيئة
  - ٣-١-٢ التطورات العلمية فى مجال تخصص التشريح
  - ٤-١-٢ المبادئ الاخلاقية والقانونية للممارسة المهنية فى مجال تخصص التشريح
  - ٥-١-٢ مبادئ واساسيات الجودة فى الممارسة المهنية فى مجال تخصص التشريح
  - ٦-١-٢ اساسيات واخلاقيات البحث العلمى

##### ٢-٢ المهارات الذهنية :

- بانتهاج دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على :
- ١-٢-٢ تحليل وتقييم المعلومات فى مجال تخصص التشريح والقياس عليها لحل المشاكل

- ٢-٢-٢ حل المشاكل المتخصصة مع عدم توافر بعض المعطيات
- ٣-٢-٢ الربط بين المعارف المختلفة لحل المشاكل المهنية
- ٤-٢-٢ اجراء دراسة بحثية او كتابة دراسة علمية منهجية حول مشكلة بحثية
- ٥-٢-٢ تقييم المخاطر فى الممارسات المهنية فى مجال تخصص التشريح والاجنة
- ٦-٢-٢ التخطيط لتطوير الاداء فى مجال التشريح والاجنة
- ٧-٢-٢ اتخاذ القرارات المهنية فى سياقات مهنية متنوعة

### ٣-٢ المهارات المهنية

- بانتهاى دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على :
- ١-٣-٢ اتقان المهارات المهنية الاساسية والحديثة فى مجال التشريح والاجنة
- ٢-٣-٢ كتابة وتقييم التقارير المهنية
- ٣-٣-٢ تقييم الطرق والادوات القائمة فى مجال التشريح والاجنة

### ٤-٢ المهارات العامة والمنتقلة :

- بانتهاى دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على :
- ١-٤-٢ التواصل الفعال بأنواعه المختلفة
- ٢-٤-٢ استخدام تكنولوجيا المعلومات بما يخدم الممارسة المهنية
- ٣-٤-٢ التقييم الذاتى وتحديد احتياجاته التعليمية
- ٤-٤-٢ استخدام المصادر المختلفة للحصول على المعلومات والمعارف
- ٥-٤-٢ وضع قواعد ومؤشرات تقييم اداء الاخرين
- ٦-٤-٢ العمل فى فريق سياقات مهنية مختلفة
- ٧-٤-٢ ادارة الوقت بكفاءة
- ٨-٤-٢ التعلم الذاتى والمستمر

### ملحق 3:

## المعايير المرجعية الخارجية) Benchmarks

### Programme Specification: MSc in Neuroscience

1. Awarding institution/body	University of Oxford	
2. Teaching institution	University of Oxford	
3. Programme accredited by	n/a	
4. Final award		MSc
5. Programme Neuroscience		
6. UCAS code		n/a
7. Relevant subject benchmark statement	n/a	
8. Date of program specification	July 2008	

#### 9. Educational aims of the program

- To expose students to a broad range of topics within neuroscience and add both breadth and strength to the traditional '3-year PhD' training.
- To provide formal training in the theory and practical technology of neuroscience from the most basic molecular mechanisms through to clinical neurobiological issues.
- To offer research projects in a very wide range of well-established laboratories.
- To offer a flexible response to developing research needs.
- To bring students from a variety of scientific backgrounds into the field of neuroscience



## **10. Program outcomes**

### ***A. Students will develop a knowledge and understanding of:***

1. Structure and Function of the Brain, Neuroanatomy, Neuronal Cell and Molecular Biology, Synapses and Transduction, Systems Neuroscience, Cognitive and Behavioral neuroscience.

#### *Related teaching/learning methods and strategies*

There is an eight-week introductory course of lectures and practical classes in the first term.

Reading is assigned and there is an opportunity to practice writing of essays, providing formative assessment.

#### *Assessment*

One written three-hour paper (Qualifying Examination) taken at the end of the first term, with one opportunity to reset early during the following term in the case of failure. Each student has an academic advisor from among the Course Committee to whom they can turn for advice and help.

2. Advanced topics in Neuroscience

In the second and third terms, students select from further, advanced lecture modules, which also have associated practical requirements. Students select five modules from this group, at least one module within each branch of the subject (broadly Cellular, Systems and Molecular Neuroscience).

Students also choose from a wide range of research projects to undertake in the remainder of the year, after consultation with members of the Organising Committee. Two placements in research laboratories working in different areas will be completed by the end of the year, studying research topics approved by the Organising Committee.

#### *Assessment*

Each module is assessed in the form of an extended essay (3000 words) on a topic chosen by the student and approved by the module organizer. Written feedback is provided on each essay. A journal club at which students make presentations of areas of research is available to offer instead of one of the essay modules. The research projects each require a formal dissertation (not more than 10,000 words) and a public presentation of the research material. Written and oral feedback is provided.

### ***B. Skills and other attributes***

***Students will have the opportunity to develop the following skills during the course:***

#### ***2. Intellectual skills***

***A*** Ability to evaluate and synthesize complex research material.

***B*** Experience of initiating and completing research projects with self-appraisal of the outcome.

***C*** Ability to present verbally and in written form the results of their research projects

***D*** Knowledge of current activity in the field of Neuroscience (in its broadest sense).

*Teaching/learning methods and strategies*

- A. Students are required to produce 5 extended essays (or participate in a journal club as a substitute for one essay) and two research dissertations during the course. They are supported in these activities by advice on the scope and format of the essays, by research supervision during the project that leads to the dissertation and the programme of advanced lectures that forms the core teaching of the course
- B. Students are expected to select two research projects from a proposed list, to take responsibility under supervision for setting up the design of the research study, to conduct the experimental component of the research independently and to prepare the written account of the project independently with feedback from their supervisors.
- C. Students are required to give a formal talk with slides on their first research project and present the second research project in poster format. See also B
- D. Students are required to attend lectures for the entire Introductory Course and for the 5 advanced modules that they have selected. Breadth is enforced by insisting on a selection of modules including at least one from each of the major fields, cellular, systems and molecular and by requiring each student to justify their choice of modules to the Organizing Committee before the advanced section of the course begins.

**Assessment:**

- A. The extended essays are given indicative marks and written feedback when essays are handed in. A summative assessment is prepared by the Examiners.
- B and C. Each student receives individual written feedback on their research dissertations and the presentations of the research projects.
- D. The Qualifying Examination ensures a minimum standard. The final examination includes an oral examination of both research projects and typically includes questions designed to require the candidates to place their project work in a broadly-based context.

***II. Practical skills***

Experience of laboratory-based research requiring a wide variety of technical skills, including computing data analysis, experimental design, understanding the use and operation of laboratory equipment. General understanding of computing and statistics and methods of research presentations. Time management skills.

*Teaching/learning methods and strategies*

Where relevant, practical laboratory classes, associated with lectures, are given in both introductory and advanced modules.

*Assessment*

Students receive formative assessment of these skills from their project supervisors and members of the Organizing Committee

### ***III. Transferable skills***

Presentation skills for communication. Ability to write scientifically at an advanced level. Personal skills in integrating into the host research group and in some cases in meeting and dealing with human experimental subjects.

#### *Teaching/learning methods and strategies*

Students are required to take a professional development programme, including courses in communication and presentation skills, commercial exploitation of science, time management, and the relationship between academic and industrial research

#### *Assessment:*

These courses are not formally assessed in themselves. However, students are, for example, tested on their communication and presentation skills in the oral and poster presentations of their project work. Tested informally via feedback from research group and from research supervisors. More formal tests of written communication skills from feedback on extended essays and project dissertations.

## **11. Program Structures and Features**

### ***Learning Year 1***

#### *Subjects*

##### **Introductory courses**

- Introduction to the brain
- Neuroanatomy
- Synapses and transduction
- Neuronal cell and molecular biology
- Overview of systems neuroscience

##### **Advanced courses**

- Strategies for monitoring and analysing neuronal circuits
- Cognitive neuroscience
- Cellular signaling
- Motor systems
- Computational neuroscience
- Sensory systems
- Animal models and clinical aspects of neuroscience
- CNS development, plasticity and repair
- Molecular neuroscience

##### **Professional Development**

- Communication and presentation skills
- Commercial exploitation of science
- Time management
- Relationship between academic and industrial research
- Careers

Two independent 3-month research projects

*Assessment*

All students are required to pass the Qualifying Exam on the introductory material at the end of the first term. Students will write either a 3,000-word essay or an equivalent practical write-up (as appropriate) on completing each of their specialist modules. They will write up a 10,000-word research report on each of their two research projects. They will also be assessed on their oral and poster presentation. The award of Distinctions is made on the basis of submitted written work and performance in the final oral examination.

**12. Support for Students and their learning.** There is a full time Course Lecturer (Dr Clarke), whose office is in the MSc Centre. Students would usually approach her in the first instance, and she would determine whether the problem should be referred to the Course Director and/or discussed with the Organizing Committee. An open system is encouraged in which several avenues for complaint are made available so that the students should not feel constrained by any personal factors in making their views known. In addition, all students will have a College Advisor or Graduate Tutor, who can act as a liaison point in more serious cases.

The students have access to superb IT facilities. The MSc Centre is solely for use by MSc Neuroscience and MSc in Psychological Research (a total of around 40 students). The Centre has 20 PC's, networked to a single server, so they can connect from any machine and access their files, plus laser and colour printers. IT maintenance support is provided by the Experimental Psychology department. All PC's are loaded with a variety of standard software packages, and if students require anything additional for their project, it can usually be installed (depending on licence restrictions). The Colleges also provide good IT resources and Support Officers prepared to train and assist students. In addition there is the University Computing Service, which provides facilities and classes from a basic level through to training students to use very sophisticated programmes and computing languages.

Students at Oxford have access to a wide range of libraries. The most important University libraries for these students are the Radcliffe Science Library with very extensive holdings of scientific books and journals. In addition students have access to departmental libraries of all contributing departments and their college library, which may be able to purchase books upon request. The OLIS cataloguing system incorporates the holdings of all major University libraries, Faculty libraries, and most College libraries.

**13. Criteria for Admission**

The same deadline deals with the both studentships, Wellcome Trust 4-year applications and the 1-year MSc. This deadline is in early January. The procedure for both is identical:

Candidates are required to submit a CV, a statement of no more than 1000 words explaining why they want to pursue the course, and request that two referees send letters of recommendation.

The Course Director (Dr Taylor) and Course Lecturer (Dr Clarke) perform a first round of shortlisting, selecting the best candidates. These applications are then sent to the members of the Organizing Committee to score, and at a subsequent meeting of the Organising Committee candidates are selected for interview.

Interviews are usually half an hour, consisting of a 10 minute presentation given by the student on

their research project, followed by questions. Attributes assessed at interview include

- Ability to undertake doctoral research in Neuroscience
- Capacity to benefit from theoretical and practical training in advanced Neuroscience
- Good quality degree in science or mathematics (equivalent to 2.1 standard in UK universities)
- Ability to reflect critically on experience to date

Studentships are offered to the best candidates, then further candidates are offered self-funding places at the discretion of the Organizing Committee.

Overseas candidates are sometimes exempted from interview on the basis of outstanding academic merit, for example after the award of a prestigious competitive scholarship.

#### **14. Methods for evaluating and improving the quality and standards of learning**

Feedback is collected even before the students start the course. In the summer before they start students are asked to complete a questionnaire on their level of current knowledge in various areas of neuroscience, computing and statistics. This is considered in respect of the teaching to be given in the first term.

Feedback is collected towards the end of each term, both on the taught components of the course, and the Professional Development and Careers course. This feedback is considered by the respective module organizer, and the MSc organizing committee.

We also hold feedback meetings, usually once a term, with all the students to discuss more general aspects of the course. Each student is assigned an academic mentor from the members of the Organizing Committee, which provides a route for more informal feedback. In addition, Dr. Clarke holds regular meetings (at least once per term) to hear progress and feedback related to the course from the students and supply relevant information to the students. These meetings are minuted.

The course is routinely reviewed by the Division of Medical Sciences on behalf of the University. The last review was in 2003/2004. The Division bears formal responsibility for the quality and standard of the course and as well as instigating reviews also regularly receives examiners' reports. The internal examiners' report offers reflection on both the assessment and teaching of the course. The Division ensures that the course committee responds appropriately to the reports. The Divisional Graduate Studies Committee plays an active role in formulating policy in respect of graduate courses.

Several studentships for the course are derived from external funding (Wellcome Trust, MRC). The course and its outcome have therefore been peer-reviewed by external bodies on a regular basis.

The IAUL offers a wide range of opportunities for staff development, and complements the provision made by the Division for new academic staff members. All staff have annual appraisals at which training needs may be discussed and new appointees are subject to review before being confirmed in post after 5 years. The review includes an evaluation of teaching skills.

The pass rate is 100% among those students who have pursued the course to completion. In a small number of cases, students have opted not to complete the course and an important activity is to support and enable students to perform at their best and complete in all cases where possible. Most students proceed to a D.Phil. and there is considerable enthusiasm from subsequent research supervisors about the calibre of the students produced by the course.

#### **15. Regulation of assessment**

The assessment of the course is subject to the regulations made by the Division and approved by the central EPSC published in *Examination Regulations*. Any changes to these regulations must have approval of the Division and of the central EPSC.

The marking conventions (marking scheme, weighting, combining of marks) are also subject to approval by the Division. They are communicated to students via the handbook, and any changes made during the year as a result of review are communicated separately.

The Division approves the nomination of examiners, proposed by the course committee. These are subject to approval by the Vice-Chancellor and Proctors on behalf of the University.

Boards of Examiners, under their elected Chairs, are responsible for the setting of all papers and for marking scripts. Assessors may be appointed to assist where necessary.

An External examiner is appointed for the end-of-year examinations. The external examiner writes reports, which are considered by the course committee. External examiners are asked to comment on overall standards, as well as on the examination process itself.

Examiners' reports (internal and external) are considered in the first instance by the course committee. The D-EPSC then sees the reports together with the response of the committee. The D-EPSC may make its own recommendations which are then communicated to the course committee. Changes may be introduced to the course or assessment procedure for the following year. The reports and responses are also monitored by the central EPSC.

#### *Final Examination*

#### **Marking Scale**

7.5+	Distinction	Equivalent to First Class at graduate level
6.5-7.4		Equivalent to high upper Second Class at graduate level
5.5-6.4	Satisfactory	Equivalent to low upper Second Class at graduate level
5.0-5.4		Equivalent to lower Second Class at graduate level
NS(below 5.0)	Not satisfactory	Equivalent to Third Class at graduate level

**1**

#### **16. Indicators of quality and standards**

Reports from external examiners regularly make reference to the high quality of the students.

The MSc in Neuroscience was included in the QAA Subject Review of Psychology and received the top rating of 24/24.

#### ملحق 4

### مصفوفة المعايير الأكاديمية للبرنامج مع المعايير القياسية للدراسات العليا الصادرة عن الهيئة

- مواصفات الخريج:

مواصفات الخريج بالمعايير الأكاديمية للبرنامج	مواصفات الخريج بالمعايير القياسية للدراسات العليا (درجة الماجستير)
1-To offer the administrative skills necessary for delivery of research services in the field of anatomy and embryology.	1-Demonstrate excellence in the application of principles and methodologies of scientific research and the use of various tools 2-Apply analytical methodology in anatomy and embryology
2-To provide students with necessary knowledge & skills of the experimental embryology and related basic medical sciences to understand the anatomy and congenital malformation of human body.	3-Apply specialized knowledge and integrate it with related knowledge 4-Show awareness of current problems and new concepts in anatomy and embryology 5-Determine the professional problems and propose appropriate solutions .
3-To provide students with basic knowledge for the preparation of different anatomical specimens and injection techniques for freshly obtained bodies and how to prepare a museum jars.	6-Demonstrate proficiency in a significant range of specialized professional skills 7-Communicate effectively and lead work teams 8-Make informed decisions in various professional contexts 9-Employ available resources widely to achieve maximum benefits .
4-To offer lifelong learning competencies necessary for continuous professional development in anatomy and embryology.	10-Show awareness of his role in community development and environmental preservation in light of regional and global changes . 11-Conduct himself in a manner that reflect integrity and sincerity and follows the ethical code of practice 12-Exercise autonomy in academic and professional self development as well as continuous learning

١ - المخرجات التعليمية المستهدفة من البرنامج

أ - المعرفة والفهم:

المعايير الأكاديمية للبرنامج	المعايير القياسية العامة لبرامج الدراسات العليا (درجة الماجستير)
<p><i>By the end of MD program, the candidate should recognize and understand the followings:</i></p> <p><b>2.a. 1. Illustrate</b> the detailed gross anatomy of different parts of human body, including the neuroanatomy.</p> <p><b>2.a.2. Explain</b> the development as a key to catch normal and abnormal anatomy.</p> <p><b>2.a.3. Discuss</b> the anatomical relations in different parts and regions of the human body.</p> <p><b>2.a.4. Identify</b> the terms and planes and movements of different parts and regions of human body.</p> <p><b>2.a.5. Describe</b> the morphology, location, vasculature and innervations different parts of human body.</p> <p><b>2.a.9. Discuss</b> the measurements of different parts of human bodies</p>	<p>١-١-٢ النظريات والاساسيات الحديثة من المعارف في مجال التخصص والمجالات ذات العلاقة</p>
<p><b>2.a.6 . Describe</b> the most recent important techniques of specimen preparation.</p> <p><b>2.a.13.Categorize</b> the teratogenic factors &amp; their effects on the genetics and molecular biology.</p>	<p>٢-١-٢ اساسيات ومنهجيات واخلاقيات البحث العلمى وادواته المختلفة</p>
<p><b>2.a.7. Know</b> the details of surgical &amp; applied anatomy</p> <p><b>2.a.10. Recognize</b> the radiological anatomy to know the details of deeper structure</p> <p><b>2.a.11. Demonstrate</b> the surface anatomy of the visible and deeper structures of the body.</p> <p><b>2.a.13.Categorize</b> the teratogenic factors &amp; their effects on the genetics and molecular biology.</p>	<p>٣-١-٢ المبادئ الاخلاقية والقانونية للممارسة المهنية فى مجال التخصص</p>
<p><b>2.a.6 . Describe</b> the most recent important techniques of specimen preparation</p> <p><b>2.a.8. Recognize</b> the impact of fine structure of the anatomical components.</p>	<p>٤-١-٢ مبادئ واساسيات الجودة فى الممارسة فى مجال التخصص</p>
<p><b>2.a.12. Classify</b> the body parameter in successive age advances to give a way for the study of the growth &amp; development.</p> <p><b>2.a.13.Categorize</b> the teratogenic factors &amp; their effects on the genetics and molecular biology.</p>	<p>٥-١-٢ المعارف المتعلقة بأثار ممارسته المهنية على البيئة وطرق تنمية البيئة وصيانتها</p>



ب - القدرات الذهنية :

المعايير الأكاديمية للبرنامج	المعايير القياسية العامة (Generic) لبرامج الدراسات العليا (درجة الماجستير)
The end of the study for a doctorate program the graduate must be able to : <b>2.b.1. Interpret the results of radiological and surface anatomy.</b> <b>2.b.2. Correlate between the developmental basis and its related anatomical facts including the teratogenic factors.</b>	بانتهاج دراسة برنامج الدكتوراه يجب ان يكون الخريج قادرا على: ١-٢-٢ تحليل وتقييم المعلومات في مجال التخصص والقياس عليها والاستنباط منها
<b>2.b.6. Analyze the causes of genetic defects .</b> <b>2.b.7. Interpret the developmental causes of nervous system</b>	٢-٢-٢ حل المشاكل المتخصصة استنادا على المعطيات المتاحة
<b>2.b.8. Interpret the scientific knowledge to understand the vertebrate biology .</b>	٣-٢-٢ اجراء دراسات بحثية تضيف الى المعارف
<b>2.b.9. Combine the technical and investigational datab proficient in histological problem solving</b>	٤-٢-٢ صياغة أوراق علمية
<b>2.b.3 Appreciate the danger of the environmental factors on the development of body systems</b>	٥-٢-٢ تقييم المخاطر في الممارسات المهنية
<b>2.b.1. Interpret the results of radiological and surface anatomy.</b>	٦-٢-٢ التخطيط لتطوير الاداء في مجال التخصص
<b>4. Formulate a systematic approach for different surgical incisions</b>	٧-٢-٢ اتخاذ القرارات المهنية في سياقات مهنية مختلفة
<b>2.b.6. Analyze the causes of genetic defects</b>	٨-٢-٢ الابتكار/الابداع
<b>2.b.4. Formulate a systematic approach for different surgical incisions.</b> <b>2.b.5. Correlate between the normal and abnormal gross structure in the different developmental ages.</b>	٩-٢-٢ الحوار والنقاش المبني على البراهين والادلة

ج. مهارات مهنية وعملية :

المعايير الأكاديمية للبرنامج	المعايير القياسية العامة (Generic) لبرامج الدراسات العليا (درجة الماجستير)
<p>The end of the study for a doctorate program the graduate must be able to :</p> <p><b>2.c .1 Prepare</b> the embryonic specimen, dissected regions of human body and human organs</p> <p><b>2.c.2. Prepare</b> the histological sections to show the structural changes in vertebrate .</p> <p><b>2.c.3 Process &amp; stain</b> the specific tissues specimen and report the immunological structures .</p> <p><b>2.c .4. Perform</b> anthropometric techniques &amp; methods.</p>	<p>بإنتهاء دراسة برنامج الماجستير يجب ان يكون الخريج قادرا على:</p> <p>١-٣-٢ اتقان المهارات المهنية الأساسية والحديثة في مجال التخصص</p>
<p><b>2.c.5. Write</b> reports about different anatomical regions and on a radiographic films</p>	<p>٢-٣-٢ كتابة وتقييم التقارير المهنية</p>
<p><b>2.c.6 Perform</b> a cross sectional anatomical specimens.</p>	<p>٣-٣-٢ تقييم وتطوير الطرق والادوات القائمة في مجال التخصص</p>
<p><b>2.c.3 Process &amp; stain</b> the specific tissues specimen and report the immunological structures .</p> <p><b>2.c .4. Perform</b> anthropometric techniques &amp; methods.</p>	<p>٤-٣-٢ استخدام الوسائل التكنولوجية بما يخدم الممارسة المهنية</p>
<p><b>2.c.7 prepare</b> the box slide for CNS specimens.</p> <p><b>2.c.8 Prepare</b> the museum specimen and recognize the molecular biology techniques .</p>	<p>٥-٣-٢ التخطيط لتطوير الممارسة المهنية وتنمية اداء الاخرين</p>

د . مهارات عامة و منتقلة :

المعايير الأكاديمية للبرنامج	المعايير القياسية العامة (Generic) لبرامج الدراسات العليا (درجة الماجستير )
By the end of MD program, candidate should accept the following skills: 2.d..1.Communicate effectively with teaching stuff and colleagues. 2.d.5 .Establish effective interpersonal relationship to Communicate ideas and arguments .	بانتهاؤ دراسة برنامج الماجستير يجب أن يكون الخريج قادرا على: ٢-٤-١ التواصل الفعال بأنواعه المختلفة
2.d.4. Present information clearly in written, electronic and oral forms.	٢-٤-٢ استخدام تكنولوجيا المعلومات بما يخدم تطوير الممارسة المهنية
2.d..2. Demonstrate appropriate attitude towards teaching stuff and colleagues.	٢-٤-٣ تعليم الاخرين وتقييم ادائهم
2.d.7. Establish life-long self-learning required for continuous professional development	٢-٤-٤ التقييم الذاتى والتعليم المستمر
2.d.5 .Establish effective interpersonal relationship to Communicate ideas and arguments .	٢-٤-٥ استخدام المصادر المختلفة للحصول على المعلومات والمعارف
2.d.6. Work effectively as a member or a leader of an interdisciplinary team	٢-٤-٦ العمل فى فريق وقيادة فرق العمل
2.d.3.Retrieve, manage, and manipulate information by all means, including electronic means.	٢-٤-٧ ادارة اللقاءات العلمية والقدرة على ادارة الوقت

-نسبة تغطية البرنامج للمعايير القومية الاكاديمية القياسية العامة لبرنامج ماجستير  
التشريح والاجنة

أ-المعرفة والفهم = ١٠٠ % ب- المهارات الذهنية = ١٠٠ %

ج-المهارات المهنية والعلمية = ١٠٠ % د-المهارات العامة = ١٠٠ %

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

اهداف للبرنامج	مواصفات الخريج بالمعايير البرنامج (درجة الماجستير)
1-To offer the administrative skills necessary for delivery of research services in the field of anatomy and embryology.	1-Demonstrate excellence in the application of principles and methodologies of scientific research and the use of various tools 2-Apply analytical methodology in anatomy and embryology
2-To provide students with necessary knowledge & skills of the experimental embryology and related basic medical sciences to understand the anatomy and congenital malformation of human body.	3-Apply specialized knowledge and integrate it with related knowledge 4-Show awareness of current problems and new concepts in anatomy and embryology 5-Determine the professional problems and propose appropriate solutions .
3-To provide students with basic knowledge for the preparation of different anatomical specimens and injection techniques for freshly obtained bodies and how to prepare a museum jars.	6-Demonstrate proficiency in a significant range of specialized professional skills 7-Communicate effectively and lead work teams 8-Make informed decisions in various professional contexts 9-Employ available resources widely to achieve maximum benefits .
4-To offer lifelong learning competencies necessary for continuous professional development in anatomy and embryology.	10-Show awareness of his role in community development and environmental preservation in light of regional and global changes . 11-Conduct himself in a manner that reflect integrity and sincerity and follows the ethical code of practice 12-Exercise autonomy in academic and professional self development as well as continuous learning

نواتج تعلم البرنامج												المعايير الأكاديمية للبرنامج	
المعرفة و الفهم knowledge and Understanding													
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.
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	By the end of the program the graduate should be able to: 1. Know the basic principles and practice and recent advances in anatomy and Embryology
	✓					✓			✓		✓		2. The mutual influence between professional practice and its impact on the environment
				✓							✓		3-The scientific development in Anatomy and Embryology
								✓	✓				4-The ethical and legal principles of professional practice in the field of anatomy and embryology
					✓	✓	✓						5-The principles and fundamentals of quality in professional practice in anatomy and embryology
					✓	✓	✓						6-The fundamentals and ethics of scientific research

نواتج تعلم البرنامج									المعايير الأكاديمية للبرنامج المهارات الذهنية
Intellectual skills									
2.b.9	2.b.8	2.b.7	2.b.6	2.b.5	2.b.4	2.b.3	2.b.2.	2.b.1.	
✓								✓	By the end of the program the graduate should be able to: 1. Analyze, evaluate and interpret data in anatomy and embryology and apply the information in problem solving .
			✓		✓				2. Solve problems according to available data.
	✓				✓	✓	✓		3. Link between different knowledge to solve professional problems
							✓		4-Conduct a research study and write a scientific study about a specific research problem
						✓	✓		5. Assess risks in professional practices in the field of anatomy and embryology
					✓	✓	✓		6. Plane for the development of performance in the field of anatomy and embryology
		✓			✓	✓	✓		7-Make professional decisions in a variety of professional contexts

نواتج تعلم البرنامج										المعايير الأكاديمية للبرنامج المهارات المهنية	
Practical/Professional skills											
									2.c.1.	√	By the end of the program the graduate should be able to: 1-Show proficiency in basic and up to date professional skills in Anatomy and Embryology 2. Write and evaluate professional reports. 3. Evaluate and develop methods used in different clinical investigations.
									2.c.2.	√	
									2.c.3.	√	
									2.c.4.	√	
									2.c.5.	√	
									2.c.6.	√	
									2.c.7.	√	
									2.c.8.	√	

نواتج تعلم البرنامج										المعايير الأكاديمية للبرنامج المهارات العامة والمنتقلة	
General and transferable skill											
									2.d.1.	√	By the end of the program the graduate should be able to: 1. Communication effectively using different methods. 2. Use information technology in developing professional practice. 3. Exercise autonomy in self-evaluation and identification of personal learning needs
									2.d.2.	√	
									2.d.3.		
									2.d.4.	√	
									2.d.5.	√	
									2.d.6.	√	
									2.d.7.	√	

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									√		√	4-Use various resources for the retrieval of information and knowledge
								√	√	√		5-Develop standards and indicators for assessing the performance of others
						√						6-Work effectively in a team as leader or member in various professional situations
				√								7-Master the time effectively 8-Demonstrate independent and continuous learning

مع البرنامج : Program-Courses ILOs Matrix

المعارف Knowledge & Understanding													ILOs Courses & codes
2.a.13	2.a.12	2.a.11	2.a.10	2.a.9	2.a.8	2.a.7	2.a.6	2.a.5	2.a.4	2.a.3	2.a.2	2.a.1	
√							√				√		Embryology ANAT 601
					√		√						Histology ANAT 602
√													Molecular Biology ANAT 603
				√									Bioanthropology ANAT 604
			√										Radiological anatomy ANAT 605
	√												Comparative anatomy ANAT 606
						√	√					√	Advanced neuroanatomy ANAT 607
√													Basic genetics ANAT 608
	√							√	√	√		√	Human anatomy ANAT 609



مهارات ذهنية Intellectual Skills									ILOs
2.b.9	2.b.8	2.b.7	2.b.6	2.b.5	2.b.4	2.b.3	2.b.2	2.b.1	Courses
				√		√	√		• Embryology
√									• Histology
			√						• Molecular Biology
	√					√			• Bioanthropology
								√	• Radiological anatomy
						√			• Comparative Anatomy
		√							• Advanced Neuroanatomy
			√				√		• Basic genetics
				√	√			√	• Human anatomy

مهارات عملية و مهنية Practical & Clinical Skills								ILOs
2.c.8	2.c.7	2.c.6	2.c.5	2.c.4	2.c.3	2.c.2	2.c.1	Courses
					√		√	• Embryology
					√			• Histology

√								<b>Molecular Biology</b>
				√				• <b>Bioanthropology</b>
			√					• <b>Radiological anatomy</b>
						√		• <b>Comparative Anatomy</b>
√								• <b>Advanced neuroanatomy</b>
					√			• <b>Basic genetics</b>
√		√						• <b>Human anatomy</b>

<b>General &amp; transferable skills</b>							<b>ILOs</b>
2.d.7	2.d.6	2.d.5	2.d.4	2.d.3	2.d.2	2.d.1	<b>Courses &amp; codes</b>
√	√	√	√	√	√	√	• <b>Embryology</b>
√	√	√	√	√	√	√	• <b>Histology</b>
√	√	√	√	√	√	√	• <b>Molecular Biology</b>
√	√	√	√	√	√	√	• <b>Bioanthropology</b>
√	√	√	√	√	√	√	• <b>Radiological anatomy</b>
√	√	√	√	√	√	√	• <b>Advanced neuroanatomy</b>
√	√	√	√	√	√	√	• <b>Comparative anatomy</b>
√	√	√	√	√	√	√	• <b>Basic genetics</b>
√	√	√	√	√	√	√	• <b>Human anatomy</b>

We certify that all information required to deliver this program is contained in the above specification and will be implemented. All course specification for this program are in place.

**Program coordinator:**

Name: ا. د / سعدية شلبي

Signature & date:

ا. د / سعدية شلبي

**Head of department:**

Name: ا. د. عصام عيد

Signature & date:

ا. د / عصام عيد