Beni Suef University
Faculty of Veterinary Medicine
Department of Anatomy and Embryology

Program Specification for Master Degree
2017-2018

A-Basic information:

1- Program title: *MVSC.,*
2- Program type: *Single*
3- Department offering program: *Anatomy and Embryology Department*
4-Academic year: *2017-2018*
5-Approval date of Department Council:
6-Approval date of Faculty Council:
7-External evaluator: Prof. Dr. Essam Mohamed Moustafa El-Gindy

B-Professional information:

1- Overall aims of the program:

1-Provide graduates the opportunity to develop communication skills.
2-Enable graduates to achieve competency in modern laboratory technology.
3- Allow graduates to develop practical research project.
4-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data.
5- Distinguish the different stages of prenatal and post natal development of domestic animals.
6- Conclude the typical structure of the skeletal, digestive, nervous, urogenital, respiratory and circulatory systems and sense organs of the domestic animals.

2- Intended learning outcomes of course (ILOs):

a- Knowledge and understanding:

On successful completion of this program the graduate should be able to:

a1. Distinguish the principle component of the locomotor system with special references to the thoracic limb, pelvic limb and thorax of domestic animals.

a2. Conclude the typical structure of the digestive, nervous, lymphatic, urogenital, respiratory and circulatory systems of the domestic animals.

a3. Ascertain the surface landmarks of the underlying bones, muscles, tendons and internal structures (main nerves, vessels and viscera).

a4. Distinguish the different stages of the development of domestic animals.

a5. Recognize a comprehensive knowledge about the gross anatomy of the digestive, urinary, male genital, female genital, nervous and lymphatic system of domestic animals.

a6. Conclude the typical structures of the central nervous system, peripheral nervous system, autonomic nervous system and sense organs.

a7. Mention the topographical position, afferent and efferent lymph drainage in domestic animals.

a8. Set the comparative points of the various visceral organs in domestic animals with special reference to their clinical significances.

b- Intellectual skills:

On successful completion of master program the graduate should be able to:

b1- Identify, conceptualize and define research problems and questions

b2- critically evaluate their own research data and develop new approach to solving their research questions

b3- develop creative approaches to solving technical problems or issues associated with running and researches project.

b4- identify , summarize and evaluate prior researches finding in a specific area.

b5. Identify the different stages of the development of domestic animals.

b6. Comparison between the respiratory, digestive, urinary, male, female, cardiovascular and sense organs in domestic animals.

b7. Relate structure-functions relation of those organs system components.

b8. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.

b9. Correlate the anatomical facts to the clinical problems.

c- Professional and practical skills:

On successful completion of this program the graduate should be able to:

c1- Apply the principles of good experimental design and analysis to their own research project .

c2- Select and perform relevant statistical analysis on data obtained for their own research .

c3- Perform postmortem dissection of domestic animals.

c4- Interpret on clinical findings inside domestic animals based on known normal anatomy background.

d- General and transferable skills:

On successful completion of this program the graduate should be able to:

d1. Appreciate the team working and time management.

d2. Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.

d3. Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.

d4. Maintain a professional image concerning behavior, dress and speech.

d5. Be responsible toward work.

d6. Communicate effectively with public, colleagues and appropriate authorities.

d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.

d8. Prepare a scientific paper and essay.

3- Academic standers:

* The faculty mission, vision and strategic objective are confirmed to the academic standard. The learning outcomes are inline with the department and the faculty mission.

* Postgraduates NARS (March 2009) Master degree chapter issued by national authority for quality assurance and accreditation of education (NAQAAE) and Veterinary medicine post graduate academic standards (ARS) for the faculty of veterinary medicine, Beni-Suef University, Beni-Suef, Egypt are selected to confirm the appropriateness of the academic standards .

4- Program Structure and Contents

A- Program duration: At least two academic years from the approval of registration by the Faculty Council and maximum four years. The faculty council has the right to give the applicant another period not excced two years according to the supervisor request

The first year for preliminary courses study, while the second year for researches and preparation of the Master Thesis.

B- Program structure: Hours/ week:

Basic course:-

Theoretical [4] Practical [7] Total [11]

Subsidiary courses:-

Theoretical [4-8] Practical [6-8] Total [10-16]

☒ **Master Thesis: completed during the second academic year.**

C- Program courses:

1- Basic courses

Code	Course title	Hours /week		Academic year	Teaching duration
		theoritical	practical		
	Master Principal course	3	4	Preliminary year	36 weeks
	Research methods	1	3	Preliminary year	36 weeks

2-subsidiary courses

Code	Course title	Hours /week		Academic year	Semester
		theoretical	practical		
	Selected (3-5) courses depending on the thesis title from the various Faculty Master courses other than specialty of the Master.	5-6	6-9	Preliminary year	36 weeks

D- Courses contents

See master courses specification

5- Program Admission Requirements

a- According to the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduate Programs, applicants should have BVSc., from an Egyptian University or equivalent degree from any approved university, with at least general grade (Good) and (Very Good) in the specialized subject.

b- Also if the student has postgraduate diploma in one specialization of total (3 hours) at least with general grade (Good) and (Very good) in the specialized subject.

c- According to Beni-Suef University requirements, all applicants for postgraduate studies should fulfill preliminary courses on the following subjects:

I- English language (Toefl or equivalent degree)

d- Admission to the program is open during March and September annually after at least one year from the BVSc degree.

6. Regulations for Progression and Program Completion

After finishing the preliminary courses, the graduate student will be eligible to sit for the examination according to the following roles:

No. of course teaching hours/ week	Allowed time for written exam.	Degree	
		Theoretical	Practical and oral exam
≥ 3 hours	3 hours	50	50
≤ 3 hours	2 hours	25	25

- It is mandatory to pass all the courses each chance except biostatic (212)

-The passing mark in each exam is ⩾ 60%.

-The faculty council has the right to deprive the applicant from entering the exams if his attendance courses is less than 75% .

Qualification grades:

Excellent	≥ 90
Very good	≥80
Good	≥70
Pass	≥60
Failed	45 to less than 60 weak
	Less than 45 Very weak

-After passing, the graduate starts research for Master Thesis at the beginning of

the second year.
-The candidate will receive his degree after evaluating and approving the thesis by a committee according to University regulations.
-The applicant should publish at least one scientific papers from the thesis in local or international journals

7-Graduate student assessment

A: Assessment Tools

According the Faculty of Veterinary Medicine, Beni-Suef University Bylaws for Post Graduate, students should be assessed at the end of preliminary year and the thesis should be evaluated and approved by a committee according to University regulations.

1-Preliminary year

Assessments methods for each course	**practical exam**	**Oral exam**	**Written exam**
Time of Assessments	By the end of the year	By the end of the year	By the end of the year
Marks	25	25	50

2-Master Thesis:

All master-degree students should prepare a thesis in anatomy and embryology. The department council must approve the protocol (plan) of the research. The thesis is supervised by one or more staff members and may include other specialties according to the nature of the research. The thesis should be evaluated and approved by a committee according to University regulations.The applicant should publish at least one scientific paper from the thesis in local or international journals

B- Matrix alignment of the measured ILOs

Assessments methods	Matrix alignment of the measured ILOs			
	K&U (a)	I.S (b)	P&P. S (c)	G&T. S (d)
written exam	a1,a3,a4,,a6,a 7,a8	b1,b2,b4,b5,b 6,b7,b8	-	
Practical exam	c1,c3,c4, a3,a4,a5	b1,b2,b4	c1,c2,	d1,d2
Oral exam	a1,a2,a3,a4,a5	b1,b2,b3	c1,c2	d1,d3,d4,d5,

Course coordinator **Head of the Department**

Dr. Ashraf Sayed Awaad ***Prof.Dr. Zein Adam***

Master Program Specification Matrix (Program ILOS with Academic standers ARS)

Academic standers **Program ILOs**		**Knowledge and understanding**						**Intellectual skills**							**Professional and practical skills**						**General and transferable skills**						
		a1	a2	**a 3**	**a 4**	**a5**	**a6**	**b1**	**b 2**	**b 3**	**b4**	**b 5**	**b6**	**b 7**	**c1**	**c2**	**c3**	**c4**			**d1**	**d2**	**d 3**	**d4**	**d5**	**d6**	**d7**
Knowledge and understanding	a1	x		x																							
	a2		x	x	x																						
	a3	x	x				x																				
	a4			x																							
	a5				x	x																					
	a6		x	x																							
	a7			x																							
	a8			x																							
Intellectual skills	b1								x	x																	
	b2										x		x														
	b3							x																			
	b4								x	x	x																
	b5							x	x	x				x													
	b6								X		x																
	b7									x		x															
	b8							x	x																		
	b9							x		x	x																
Professional and practical skills	c1														x			x									
	c2															x	x										
	c3																x										
	c4															x	X										

General and transferable skills	**d1**																						x		x		
	d2																					x	x	x			
	d3																					x	x			x	
	d4																						x	x			
	d5																					x					x
	d6																						x	x			
	d7																					x		x		x	
	d8																				x			x			

Master Program Specification Matrix (Program Courses with ILOS)

Program ILOs		Courses
Knowledge and understanding	a1	**M-1, M-2, M3, M8**
	a2	**M-1, M-4, M-5, M-6, M-7,M-8**
	a3	**M-1, M-2,M-3, M-7,M-8**
	a4	**M-9**
	a5	**M-1,M-4,M-5,M-6,M-8**
	a6	**M-8**
	a7	**M-2, M-7**
	a8	**M-1, M-4, M-5, M-6**
Intellectual skills	b1	**Thesis**
	b2	**Thesis**
	b3	**Thesis**
	b4	**Thesis**
	b5	**M-9**
	b6	**M-4,M-5, M-6**

	b7	**M-1**
	b8	**M-1**
	b9	**M-1**
Professional and practical skills	c1	**M-2, thesis**
	c2	**M-2, thesis**
	c3	**M-2,M-4,M-5,M-6,M-7,M-8,M-10,M-11**
	c4	**M-2,M-4,M-5,M-6,M-7,M-8,M-10,M-11**
General and transferable skills	**d1**	**Thesis and research**
	d2	**Thesis and research**
	d3	**Thesis and research**
	d4	**Thesis and research**
	d5	**Thesis and research**
	d6	**Thesis and research**
	d7	**Thesis and research**
	d8	**Thesis and research**

Program aims – ILOS Matrix for the Master program

مصفوفة اهداف البرنامج مع مخرجات التعلم المستهدفة

Program ILOs / Program ILOS		Program aims					
		1-Provide graduates the opportunity to develop communication skills.	2-Enable graduates to achieve competency in modern laboratory technology	3- Allow graduates to develop practical research project	4-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data	5- Distinguish the different stages of prenatal and post natal development of domestic animals	6- Conclude the typical structure of the skeletal, digestive, nervous, urogenital, respiratory and circulatory systems and sense organs of the domestic animals
Knowledge and understanding	a1. Distinguish the principle component of the locomotor system with special references to the thoracic limb, pelvic limb and thorax of domestic animals						√
	a2. Conclude the typical structure of the digestive, nervous, lymphatic, urogenital, respiratory and circulatory systems of the domestic animals.						√
	a3. Ascertain the surface landmarks of the underlying bones, muscles, tendons and internal structures (main nerves, vessels and viscera).						√
	a4. Distinguish the di erent stages of the development of domestic animals					√	
	a5. Recognize a comprehensive knowledge about the gross anatomy of the digestive, urinary, male genital, female genital, nervous and lymphatic system of domestic animals.						√

Program ILOs Program ILOS		Program aims					
		1-Provide graduates the opportunity to develop communication skills.	2-Enable graduates to achieve competency in modern laboratory technology	3- Allow graduates to develop practical research project	4-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data	5- Distinguish the different stages of prenatal and post natal development of domestic animals	6- Conclude the typical structure of the skeletal, digestive, nervous, urogenital, respiratory and circulatory systems and sense organs of the domestic animals
	a6. Conclude the typical structures of the central nervous system, peripheral nervous system, autonomic nervous system and sense organs.						√
	a7. Mention the topographical position, afferent and efferent lymph drainage in domestic animals						√
	a8. Set the comparative points of the various visceral organs in domestic animals with special reference to their clinical significances.						√
Intellectual skills	b1- Identify, conceptualize and define research problems and questions .	√		√			
	b2- critically evaluate their own research data and develop new approach to solving their research questions	√		√			
	b3- develop creative approaches to solving technical problems or issues associated with running and researches project		√	√			

Program ILOs		Program aims					
Program ILOS		1-Provide graduates the opportunity to develop communication skills.	2-Enable graduates to achieve competency in modern laboratory technology	3- Allow graduates to develop practical research project	4-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data	5- Distinguish the different stages of prenatal and post natal development of domestic animals	6- Conclude the typical structure of the skeletal, digestive, nervous, urogenital, respiratory and circulatory systems and sense organs of the domestic animals
	b4- identify , summarize and evaluate prior researches finding in a specific area.		√	√			
	b5. Identify the di erent stages of the development of domestic animals.		√			√	
	b6. Comparison between the respiratory, digestive, urinary, male, female, cardiovascular and sense organs in domestic animals.						√
	b7. Relate structure-functions relation of those organs system components.						√
	b8. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.					√	√
	b9. Correlate the anatomical facts to the clinical problems.						√
and pro fes sio	c1- Apply the principles of good experimental design and analysis to their own research project .			√	√		

Program ILOs Program ILOS		Program aims					
		1-Provide graduates the opportunity to develop communication skills.	2-Enable graduates to achieve competency in modern laboratory technology	3- Allow graduates to develop practical research project	4-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data	5- Distinguish the different stages of prenatal and post natal development of domestic animals	6- Conclude the typical structure of the skeletal, digestive, nervous, urogenital, respiratory and circulatory systems and sense organs of the domestic animals
	c2- Select and perform relevant statistical analysis on data obtained for their own research .			√	√		
	c3- Perform postmortem dissection of domestic animals.						√
	c4- Interpret on clinical findings inside domestic animals based on known normal anatomy background.						√
General and transferable	d1. Appreciate the team working and time management.	√					
	d2. Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.	√					
	d3. Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.	√					
	d4. Maintain a professional image concerning behavior, dress and speech.	√					

Program ILOs Program ILOS		Program aims					
		1-Provide graduates the opportunity to develop communication skills.	2-Enable graduates to achieve competency in modern laboratory technology	3- Allow graduates to develop practical research project	4-Develop the ability of graduate to engage critically with scientific literature and to critically review and present their own research data	5- Distinguish the different stages of prenatal and post natal development of domestic animals	6- Conclude the typical structure of the skeletal, digestive, nervous, urogenital, respiratory and circulatory systems and sense organs of the domestic animals
skills							
	d5. Be responsible toward work.	√					
	d6. Communicate e ectively with public, colleagues and appropriate authorities.	√					
	d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.	√					
	d8. Prepare a scienti c paper and essay				√		

Beni-Suef University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification

A- Administrative Information:

Course Code:	MBC-ANAT
Course title :	Anatomy and embryology.
Academic year:	Postgraduate students.
Program title:	Master of Vet. Med. Sciences (laboratory animals).
Degree:	Master.
Contact hours/ week	7 hours per week (3hr theoretical and 4hr practical).
Course coordinator:	Dr. Ashraf Sayed Awaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in anatomyand embryology, the postgraduate student will be able to recognize the fundamentals of their gross, comparative and appliedanatomy.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the locomotor system with special references tothe thoracic limb, pelvic limb and thorax of domestic animals.

a2. Conclude the typical structure of the digestive, nervous, lymphatic, urogenital, respiratory and circulatory systems of the domestic animals.

a3. Ascertain the surface landmarks of the underlying bones, muscles, tendons andinternal structures (main nerves, vessels and viscera).

a4. Distinguish the different stages of prenatal development of domestic animals.

a5. Conclude the main stages of development of digestive and urogenital systems.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the digestive, urinary, male genital, female genital, nervous and lymphatic system of domestic animals.

a8. Conclude the typical structures of the central nervous system, peripheral nervous system, autonomic nervous system and sense organs.

a9. Mention the topographical position, afferent and efferent lymph drainage in domestic animals.
a10. Set the comparative points of the various visceral organs in domestic animals with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b2. Identify the different surface markings of the animal's limbs and thorax.
b3. Identify isolated bones of the limbs of the domestic animals.
b4. Differentiate the bones and joints of limbs for domestic animals.
b5. Predict the effect on limb stance and locomotion caused by paralysis of specific nerves or muscle tendon rupture.
b6. Identify the different stages of prenatal development.
b7. Explain the different stages of development of digestive and urogenital systems.
b8. Compare between the respiratory, digestive, urinary, male and female organs in domestic animals.
b9. Relate structure-functions relation of those organs system components.
b10. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.
b11. Correlate the anatomical facts to the clinical problems.
b12. Analyze the gained anatomical facts of importance in the field of practice.
b13. Distinguish the site of origin of the different peripheral nerves.
b14. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b15. Estimate the problems related to the visceral organs in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated and assembled bones of domestic animals.
c2. Coordinate the radiographic anatomy of the bones and thorax to clarify some field problems.
c3. Interpret graphs of anatomical and physiological data
c4. Differentiate between isolated organs of domesticanimals.
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of domesticanimals.
c7. Interpret on clinical findings inside domestic animals based on known normal anatomy background.
c8. Dissect probably different regions of animal's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.
c10. Differentiate the histological slides of different embryonic stages.

d-General and transferable skills

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

d1.Appreciate the team working and time management.
d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	weeks	Total no. of hours	Lect.	Pract.
Postgraduate students Anatomy and embryology 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. The muscular and skeletal systems of domestic animals	1st and 2nd	14	6	8
	2. General embryology of domestic animals	3rd and 4th	14	6	8
	3. Special embryology of digestive system of domestic animals	5th	7	3	4
	4. Special embryology of urogenital system of domestic animals	6th	7	3	4
	5. Digestive system of domestic animals	7th to 12th	42	18	24
	6. Nervous system of domestic animals	13th to 20th	56	24	32
	7. Urogenital system of domestic animals	21th to 25th	35	15	20
	8. Respiratory system of domestic animals	26th to29th	28	12	16
	9. The circulatory system of domestic animals	30th to 32th	21	9	12
	10. The lymphatic system of domestic animals	33th 35th	21	9	12
	11. Special sense organs of domestic animals	36th	7	3	4
	Total		252	108	144

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.
5.1.2.Educational animal models, bones and preserved specimens.
5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.
5.2.2. Freshly died cadavers of laboratory animals.
5.2.3. Educational models.
5.2.4. Prepared bones from euthanatized animals.
5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).
5.3.2. Preparation of colored posters and slide presentation.
5.3.3. Preparation of bones and preserving specimens.
5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1,a2, a4, a5, a6, a7, a8, a9, a10	b5, b6,b7, b8, b9, b10, b11, b12, b13, b14, b15	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a6, a7	b1, b2, b3, b4, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9, c10	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b15	c1, c2, c4, c5, c6, c8, c9, c10	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
Written Exam	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Written Exam	50%
Student activities	------
Total	100%

6- List of references

8.1. <u>Notes and books:</u>

None

8.2. <u>Essential books:</u>

8.2.1. Atlas of rabbit anatomy,(R. Barone C Pavaux, PC Blin P. Cuq, 1973): Masson et Cie,

Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová &J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing. ***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rd edition, ISBN: 978-1-4160-6621-73251, Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html

Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmed http://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland,http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf Sayed awaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. Zein ElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy and embryology 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. The muscular and skeletal systems of domestic animals	**1st and 2nd**	1,3,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. General embryology of domestic animals	**3rd and 4th**	4	b6	c10	
	3. Special embryology of digestive system of domestic animals	**5th**	4,5	b6, b7	c10	
	4. Special embryology of urogenital system of domestic animals	**6th**	4,5	b6, b7	c10	
	5. Digestive system of domestic animals	**7th to 12th**	2,6,7,10	8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Nervous system of domestic animals	**13th to 20th**	2,6,7,10	8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Urogenital system of domestic animals	**21th to 25th**	2,6,7,10	8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of domestic animals	**26th to29th**	2,6,7,10	8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of domestic animals	**30th to 32th**	2,6,7,	8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of domestic animals	**33th 35th**	2,6,7, 9	12	6,7,8	
	11. Special sense organs of domestic animals	**36th**	1,2	12	6,7,8	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M1-ANAT
Course title :	Applied anatomy.
Academic year:	Postgraduate students.
Program title:	Master in Vet. Sciences (anatomy & embryology)
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course the postgraduate student will be able to recognize the information about nerve blocking, sites of intra-articular and intravenous injections as well as locate the superficial lymph nodes and area of auscultation and percussion in all domestic animals. Moreover, the student is able to deal with determination of the site of all types of anesthesia in all farm animals.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the comparative points of the various organs in all domestic animals by using of dried specimens technique and formalized organ specimens.

A2. Ascertain the surface landmarks of the of the different body organs in different animal species.

A3. Identify the area of auscultation and percussion in different domesticanimalsthat help in examination of thoracic vital organs.

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Outline the anatomical sites for injection either intravenous, intramuscular, subcutaneous or intra- peritoneal.

a6.Explain the surface anatomy for anaesthesia and anatomical approach of minorandmajor

surgical operations in domesticanimals such as wounds, fractures, liver biopsy, rumenotomyand cesarean.

a7. Explain the anatomical sites of different types of anaesthesia including subsynovial anesthesia(for subsynovial sheathstreatment), infiltration anesthesia (wounds and minor superficial operation), regional anesthesia (for nerve blocking of head region, fore and hind limbs and brachial plexus), paravertebral anesthesia (for thoracolumbar operations) and the epidural anesthesia (for operations of the pelvis and perineum).

a8. Outline the mucous membranes sites in all domestic animals such as mucous membrane of eye, oral and nasal cavities.

a9. Recognize the topographical anatomy of the superficial lymph nodes in farm animals that help in meat inspection.

a10. Set the comparative points of the various organs in the digestives system with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.

b2. Identify the different surface markings of the different body systems.

b3. Identify isolated organs of the in different animal.

b4. Differentiate the organs of the in different animal.

b5. Predict the effect on movement and function of the different organs caused by paralysis of specific nerves.

b6. Differentiate between the normal and abnormal position and deviated movements and malformations of the different parts of the system.

b7. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal class.

b8. Compare between thedifferent organs in different animal species.

b9. Relate structure-functions relation of those organs system components.

b10. Explain the interrelationships within and between anatomical and physiological aspects of the different body systems.

b11. Correlate the anatomical facts to the clinical problems.

b12. Analyze the gained anatomical facts of importance in the field of practice.

b13. Distinguish the site of organs of the digestive system in different animal.

b14. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.

b15. Estimate the problems related to the organs in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated and assembled organs.

c2. Coordinate the radiographic anatomy of the different system using orographic way to clarify some field problems.

c3. Interpret graphs of anatomical and physiological data

c4. Differentiate between isolated organs of this system.
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of the system parts.
c7. Interpret on clinical findings in the different body system based on known normal anatomy background.
c8. Dissect probably different regions of animal's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.
d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Applied anatomy 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Applied anatomy of the osteology (bones of the thoracic and pelvic limbs)	16	8	8
	2. Applied anatomy of the different body joints	15	8	8
	3. Applied anatomy of the digestive system.	24	12	12
	4. Applied anatomy of the male genital system.	16	8	8
	5. Applied anatomy of the female genital system.	16	8	8
	6. Applied anatomy of the urinary system.	16	8	8
	7. Applied anatomy of the nervous system	16	8	8
	8. Applied anatomy of the lymphatic system.	16	8	8
	9. Applied anatomy of the cardiovascular system.	16	8	8
	10. Applied anatomy of the respiratory system	12	6	6
	Total	**144**	**72**	**72**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.

5.1.2.Educational animal models, bones and preserved specimens.
5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.
5.2.2. Freshly died cadavers of laboratory animals.
5.2.3. Educational models.
5.2.4. Prepared bones from euthanatized animals.
5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).
5.3.2. Preparation of colored posters and slide presentation.
5.3.3. Preparation of bones and preserving specimens.
5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1,a2, a4, a5, a6, a7, a8, a9, a10	b5, b6,b7, b8, b9, b10, b11, b12, b13, b14, b15	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b15	c1, c2, c4, c5, c6, c8, c9, c10	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
Written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Written exams	50%
Student activities	-----
Total	100%

6- List of references

8.1. Notes and books:

None

8.2. Essential books:

8.2.1. Atlas of rabbit anatomy,(R. BaroneC Pavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.

This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rd edition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***

8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology

http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites
Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland,http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator
Dr. Ashraf SayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department
Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

	Topic	Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Applied anatomy 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Applied anatomy of the osteology (bones of the thoracic and pelvic limbs)	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. Applied anatomy of the different body joints	3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Applied anatomy of the digestive system.	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Applied anatomy of the male genital system.	10, 11	2,4,6,7,8	7,13	7,8	
	5. Applied anatomy of the female genital system.	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Applied anatomy of the urinary system.	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Applied anatomy of the nervous system	16,17,18	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Applied anatomy of the lymphatic system.	19, 20,21	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. Applied anatomy of the cardiovascular system.	22.23.24	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. Applied anatomy of the respiratory system	25,26	2,4,6,7, 9	12	6,7,8	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M2-ANAT
Course title :	Anatomical techniques and surface anatomy.
Academic year:	Postgraduate students.
Program title:	Master in Vet. Sciences (anatomy & embryology)
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course, the postgraduate student will be able to recognizea detailed information about all various anatomical techniques used in study of veterinary anatomy such as X- rays, sonography, computed tomography (C.T.), Magnetic Resonance Image (M.R.I.). Also, the student will be able to recognize the information about nerve blocking, sites of intra-articular and intravenous injections as well as locate the superficial lymph nodes and area of auscultation and percussion in all domestic animals. In addition, the student is able to deal with determination of the site of all types of anesthesia in all farm animals.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the comparative points of the various visceral organs in all domestic by using of dried specimens technique and cross sectional anatomy.

a2. Ascertain the surface landmarks of the of the different body organs in different animal species.

a3. Identify the area of auscultation and percussion in different domesticanimalsthat to help in examination of thoracic vital organs.

a4. Define the various techniques used in study of veterinary anatomy such as X- rays, sonography, computed tomography (C.T.), Magnetic Resonance Image (M.R.I.), SEM, TEM, digital radiography, skeleton display..

a5. Outline the anatomical sites of injection either intravenous, intramuscular, subcutaneous or intra- peritoneal.

a6.Identify the recent techniques used in the veterinary anatomy fieldincludingplastination andair drying.

a7. Explain the anatomical sites of different types of anaesthesia including subsynovial anesthesia(for subsynovial sheathstreatment), infiltration anesthesia (wounds and minor superficial operation), regional anesthesia (for nerve blocking of head region, fore and hind limbs and brachial plexus), paravertebral anesthesia (for thoracolumbar operations) and the epidural anesthesia (for operations of the pelvis and perineum).

a8. Outline the mucous membranes sites in all domestic animals such as mucous membrane of eye, oral and nasal cavities.

a9. Recognize the topographical anatomy of the superficial lymph nodes in farm animals that help in meat inspection.

a10. Explain the surface anatomy for anaesthesia and anatomical approach of minor andmajor surgical operations in domesticanimals such as wounds, fractures, liverbiopsy, rumenotomyand cesarean.

b-<u>Intellectual skills:</u>

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.

b2. Identify the different surface markings of the different body systems.

b3. Identify isolated organs of the in different animal.

b4. Differentiate the organs of the in different animal.

b5. Predict the effect on movement and function of the different organs caused by paralysis of specific nerves.

b6. Differentiate between the normal and abnormal position and deviated movements and malformations of the different parts of the system.

b7. Usethe plasintationtechnique to Compare between the different splanchnic organs in the domestic animals.

b8. Construct the normal anatomical structures of the different visceral organs in the different domestic animals by using of sonography, computed tomography (C.T.), Magnetic Resonance Image (M.R.I.).

b9. Relate structure-functions relation of those organs system components.

b10. Explain the anatomical sites of different types of anaesthesiaincluding subsynovial anesthesia (for subsynovial sheaths treatment), infiltration anesthesia (wounds and minor superficial operation), regional anesthesia (for nerve blocking of head region, fore and hind limbs and brachial plexus), paravertebral anesthesia (for thoracolumbar operations) and the epidural anesthesia (for operations of the pelvis and perineum).

b11. Correlate the anatomical facts to the clinical problems.

b12. Analyze the gained anatomical facts of importance in the field of practice.

b13. Report the normal topographical anatomy of the superficial lymph nodes in farm animals that help in meat inspection.

b14. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.

b15. Identify the area of auscultation and percussion in different domesticanimals that to help in examination of thoracic vital organs, in addition to discovering of the mucous membranes sites in all domestic animals such as m. m. of eye, oral and nasal cavities.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated and assembled organs.

c2. Coordinate the radiographic anatomy of the different system using orographic way to clarify some field problems.

c3. Interpret the anatomical structures of the different body systems of domestic animals by application of various anatomical techniques such as X-rays, sonography, computed tomography (C.T.), Magnetic Resonance Image (M.R.I.), SEM, TEM, digital radiography, skeleton display.

c4. Differentiate between isolated organs of this system.

c5. Apply the anatomy facts in solving and explanation of different clinical problems.

c6. Perform postmortem dissection of the system parts.

c7. Interpret on clinical findings in the different body system based on known normal anatomy background.

c8. Dissect probably different regions of animal's body.

c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.

d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.

d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.

d4. Maintain a professional image concerning behavior, dress and speech.

d5. Be responsible toward work.

d6. Communicate effectively with public, colleagues and appropriate authorities.

d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.

d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Anatomical techniques and surface anatomy 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Surface anatomy of the thoracic and pelvic limbs	8	4	4
	2. Applied anatomy of the different body joints	12	6	6
	3. Surface anatomy of the digestive system.	24	12	12
	4. Surface anatomy of the urogenital system.	20	10	10
	5. Surface anatomy of the nervous system.	12	6	6
	6. Applied anatomy of the lymphatic system.	12	6	6
	7. Anatomical techniques (plastination and air drying)	12	6	6
	8. Anatomical techniques (preparation of skeleton).	20	10	10
	9. Surface anatomy of the cardiovascular system.	12	6	6
	10. Surface anatomy of the respiratory system	12	6	6
	Total	**144**	**72**	**72**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.

5.1.2.Educational animal models, bones and preserved specimens.

5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.

5.2.2. Freshly died cadavers of laboratory animals.

5.2.3. Educational models.

5.2.4. Prepared bones from euthanatized animals.

5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).

5.3.2. Preparation of colored posters and slide presentation.

5.3.3. Preparation of bones and preserving specimens.

5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1,a2, a4, a5, a6, a7, a8, a9,	b5, b6,b7, b8, b9, b10, b11, b12,		d1

	a10	b13, b14, b15		
Practical Exam		b1, b2, b3, b4, b7, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b15	c1, c2, c4, c5, c6, c8, c9, c10	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
Written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Written exams	50%
Student activities	-----
Total	100%

6- List of references

8.1. Notes and books:

None

8.2. Essential books:

8.2.1. Atlas of rabbit anatomy,(R. BaroneCPavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&JHorák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includesindex.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA.

Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com

Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland, http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf SayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomical techniques and surface anatomy 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Surface anatomy of the thoracic and pelvic limbs	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. Applied anatomy of the different body joints	3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Surface anatomy of the digestive system.	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Surface anatomy of the urogenital system.	10, 11	2,4,6,7,8	7,13	7,8	
	5. Surface anatomy of the nervous system.	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Applied anatomy of the lymphatic system.	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Anatomical techniques (plastination and air drying)	16,17,18	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Anatomical techniques (preparation of skeleton).	19, 20,21	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. Surface anatomy of the cardiovascular system.	22.23.24	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. Surface anatomy of the respiratory system	25,26	2,4,6,7, 9	12	6,7,8	

Beni-Suef University
Faculty of Veterinary Medicine

Coursespecification (2016-2017)

1-Basicinformation

Course Code:	M3-ANAT
Course title :	Osteology and arthrology
Academic year:	Postgraduate students.
Program title:	Master of Vet. Med. Sciences.
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Course coordinator:	Dr. Ashraf Sayed Awaad
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

2-Professional information

Overallaimsofcourse:

This course aims to:

Provide the post graduate students with basic anatomical information about the general and especial arthrology of domestic animals that will enable them to gain skills for clinical approach to the surgical operation within the different body joints.

3-Intendedlearningoutcomesofcourse(ILOs)

a-Knowledgeand understanding:

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

a1. Recall the different bone forming the thoracic and hind limbs.

a2. Distinguish the principle component of the locomotor system with special references to the thoracic limb, pelvic limb and thorax.

a3. Conclude the typical structure of the body joints.

a4. Ascertain the surface landmarks of the underling bones, muscles, tendons and internal structures (main nerves, vessels and viscera).

a5. Set the correlation of the anatomical facts to the clinical problems related to the joints

b-Intellectualskills:

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

b1. Differentiate the bones of limbs for all animal species.

b2. Describe the structure of the different body joints of equines.

b3. Predict the effect on limb stance and locomotion caused by paralysis of specific nerves or muscle tendon rupture.

b4. Differentiate between the normal and abnormal position and deviated movements and malformations of the different joint in both limbs of equines.

b5. Describe the muscles and major named vessels and nerves of the equine limbs in terms of functional groups.

b6. Correlate the anatomical facts to the clinical problems especially that related to

Coursespecification (2016-2017)

locomotion.

b7. Analyze the gained anatomical facts of importance in the field of practice.

c-Professional and practicalskills

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

c1. Detect the shape and position of isolated and assembled bones of different domestic animals.

c2. Coordinate the radiographic anatomy of the bones and thorax to clarify some field problems.

c3. Draw labeled diagrams and illustrations of each normal anatomical structure of each joint

c4. Interpret the graphs of arthroscopy.

c5. Locate the appropriate sit for interference within each joint

d-Generaland transferable skills

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

d1. Appreciate the team working and time management.

d2. Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.

d3. Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.

d4. Maintain a professional image concerning behavior, dress and speech. d5. Be responsible toward work.

d6. Communicate effectively with public, colleagues and appropriate authorities.

d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.

d8. Prepare a scientific paper and essay.

Coursespecification (2016-2017)

4-Topics andcontents

Course	Topic	Pract.	Lect.	Total no. of hours
Postgraduate students Osteology and arthrology 4hours / weak (Lec. 2hr/wk - Pract. 2hr/wk)	1-Generalosteology(skeletons,typesof bones, bone structure).	6	6	12
	2- Bones of the thoracic limb of different domestic animals (scapula, humerus, radius and ulna, carpus, metacarpus, digits, hoof).	12	12	24
	3- Dissection of the equine thoracic limb (muscles of the l ateral aspect, muscles of the medial aspect, blood vessels nerves).	12	12	24
	4- Special arthrology of thoracic limb (shoulder, elbow, carpal, fetlock, pastern and coffin joints)	10	10	20
	5- Bones of the pelvic limb of different domestic animals (os-coxae, femur, tibia and fibula, tarsus, metatarsus).	10	10	20
	6- Dissection of the equine pelvic limb (muscles of the lateral aspect, muscles of the medial aspect, blood vessels, nerves).	12	12	24
	7- Special arthrology of pelvic limb (hip, stifle and hock joints)	10	10	20
	Total	**72**	**72**	**144**

5-Teachingandlearningmethods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. White board and data-show presentations.

5.1.2. Educational animal models, bones and preserved specimens.

5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2. Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.

5.2.2. Freshly died horses and donkeys

5.2.3. Educational models.

5.2.4. Prepared bones from euthanatized animals.

5.2.5. Demonstrating formalin preserved cadavers.

5.3. Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).

Coursespecification (2016-2017)

5.3.2. Preparation of colored posters and slide presentation.
5.3.3. Preparation of bones and preserving specimens.
5.3.4. Group discussion.

6-Teachingandlearningmethodsforthestudentswithdisabilities

6.1. Students with difficulties are encouraged to contact department instructors in office hours to discuss their individual needs for learning accommodation that may affect their ability to participate in course activities or to meet the course requirements.
6.2. At the end of practical sessions, overall revision was done for all students to overcome the problem of non-attendance any practical session.

7-Studentassessment

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a4, a5	b2, b3, b5, b7, b8	c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4	b1, b4, b5	c1, c5	d1, d2, d3, d4, d5,
Oral Exam	a1-a5	b1-b7	c1, c2, c4, c5	d3, d6,

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
Written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Written exams	50%
Student activities	------
Total	100%

Coursespecification (2016-2017)

8-List of references

8.1. Notesand books:

None

8.2. Essentialbooks:

8.2.1. Sisson and Grossman's the anatomy of the domestic animals, 5th edition (Getty, R., 1975), published by W.B. Saunders Company, Philadelphia, London and Toronto. ISBN: 0-7216-4102-4- vol.1 and 0-7216-4107-5- Vol.-2.

8.2.2. Anatomy and physiology of farm animals. 6th edition (Frandson, R.D., Wilke, W.l. and Fails, A.D., 2003), published by Lippicott Williams and Wilkins, Awolters Kluwer Company, ISBN: 0-7817-3358-8.

8.2.3. Clinical dissection guide for large animals, horse and large ruminants, 2nd edition (Constantinescu, G.M. and Constantinescu, I.A., 2004), published by Iowa State Press, ISBN: 0-8138-0319-5.

8.2.4. Miller's anatomy of the dog (Evans, H.E. and Christensen, G.C., 1979), published by W.B. Saunders Company, Philadelphia, London, Toronto, Mexico city,
Rio de -Janeiro, Sydney and Tokyo, ISBN:0-7216-3438-9.

8.2.5. Anatomy of the dromedary (Smuts, M.S. and Bezuidenhout, A.J., 1987), published by Clarendon press, Oxford, ISBN: 0-19-857188-7.

8.2.6. Atlas anatomy of the horse, (G.A. Swielim, 1997), published by Faculty of veterinary medicine- Cairo, ISBN: 977-19-4770-2.

8.2.7. Anatomy of the horse, an illustrated text, 2nd edition (Budras, K.D., Sack, W.O. and Röck, S., 1994), published by Mosby work. Hanover Germany, ISBN: 07234-19213.

8.2.8. Bovine anatomy, an illustrated text, 1st edition (Budras, K.D., Habel, R.E., Wiinsche, A. and Buda, S. 2003), published by Hanover, Germany, ISBN: 3-89993-000-2.

8.2.9. Text book of veterinary anatomy (Dyce, K.M.; Sack, W.O. and Wensing, C.J.G.1987), published by W.B. Saunders Co., Philadelphia, London, Toronto, Montreal, Sydney, Tokyo, ISBN: 0-7216-1332-2.

8.2.10. The Embryology of the domestic animals, developmental mechanisms and malformations (Nodern, D.M. and De-Lahunta, A.1986), published by Williams and Wilkins, Baltimore, London, Los Anglos, Sydney, ISBN: 0-683-06545-9.

*These books are available in the library of faculty of Veterinary Medicine, Beni-Suef University.

8.3. Recommended textbooks:

8.3.1. Anatomy of the horse, fifth, revised edition (Klaus-Dieter Budras W.O. Sack Sabine Röck, 2009), Schlütersche Verlagsgesellschaft mbH & Co. KG., Hans-Böckler-Alle 7, 30173 Hannover, printed in Germany, ISBN 978-3-89993-044-3.

8.3.2. Textbook of veterinary anatomy, fourth edition (K.M. Dyce, C.J.G. Wensing), Saunders elsevier, 3251 Riverport Lane, St. Louis, Missouri, 63043, ISBN: 978-1-4160-6607-1.

8.3.3. Miller's anatomy of the dog, fourth edition (H.E. Evans, A. de-Lahunta, 2011),

Coursespecification (2016-2017)

Saunders elsevier, 3251 Riverport Lane St. Louis, Missouri 63043, ISBN: 978-143770812-7.

8.3.4. Essentials of domestic animal embryology, first edition, (Hyttel, P., Sinowatz, F. and Vejlested, M., 2010), Saunders Elsevier, Edinburgh, London, New York, Oxford, Philadelphia, St Louis, Sydney, Toronto, ISBN: 978-0-7020-2899-1.

*These books are available online through Google search (www.google.com).

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google search www.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmed http://www.Pubmed.
Colorado State university online http://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaide https://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courses http://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museum http://skeletonmuseum.com/
Animals skeletons -www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomy http://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museum http://www.onlineveterinaryanatomy.net/
Imaging Anatomy Website http://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomy http://www.real3danatomy.com/
Interactive Programs for Canine Anatomyhttp://www.tabanat.com
Virtual Canine Anatomyhttp://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/

Coursespecification (2016-2017)

Veterinary neurobiology laboratory preview/reviewhttp://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectureshttp://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horsehttp://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomistshttp://www.images4u.com/
Veterinary anatomy: directions and planeshttp://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomyhttp://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guidehttp://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland, http://www.anatsoc.org.uk/
Sheep brain atlashttps://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation labhttp://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf Sayed Awaad Ahmed
Assistant professor of Anatomy and Embryology Faculty of Veterinary Medicine, Beni-Suef University

Head of the department

Prof. Dr. Zein ElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine, Beni-Suef University

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Postgraduate students Osteology and arthrology 4 hours / weak (Lec. 2hr/wk - Pract. 2hr/wk)	1- General osteology (skeletons, types of bones , bone structure)	1	**1, 2, 3**	**1, 2, 3**	**1, 2, 3**	1-8
	2- Bones of the thoracic limb of different domes tic animals (scapula, humerus, radius and ulna, carpus, metacarpus, digits, hoof).	2, 3, 4, 5	**1, 2, 3**	**1, 3**	**1, 2**	
	3- Dissection of the equine thoracic limb (muscl es of the lateral aspect, muscles of the medial as pect, blood vessels, nerves).	6, 7, 8, 9	**2, 4**	**2, 3, 5**	**3, 4**	
	4- Special arthrology of thoracic limb (shoulder, elbow, carpal, fetlock, pastern and coffin joints)	10, 11, 12, 13, 14, 15	3, 4, 5	2, 3, 4, 6, 7	**2, 3, 4, 5**	
	5- Bones of the pelvic limb of different domesti c animals (os-coxae, femur, tibia and fibula, tar sus, metatarsus).	16, 17, 18, 19	**1, 2, 3**	**1, 2**	**1, 2**	
	6- Dissection of the equine thoracic limb (muscl es of the lateral aspect, muscles of the medial as pect, blood vessels, nerves).	20, 21	**2, 3**	**3, 4, 5**	**3, 4**	
	7- Special arthrology of pelvic limb (hip, stifle and hock joints)	22, 23, 24, 25, 26	3, 4, 5	2, 3, 4, 6, 7	**2, 3, 4, 5**	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M4-ANAT
Course title :	Comparative anatomy of digestive system.
Academic year:	Postgraduate students.
Program title:	Master in Vet. Sciences (anatomy & embryology)
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in comparative anatomy of the digestive system, the postgraduate student will be able to recognize the fundamentals of their gross, comparative and appliedanatomy of the digestive system.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the digestive system in different animal species.

a2. Conclude the structure of the digestive systemin domesticated animal.

a3. Ascertain the surface landmarks of the digestive organs in different animal species..

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Recall the correct anatomical terms when giving topographical description of directional or positional anatomical detail.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the digestive system in different animal.

a8. Conclude the typical structures of the nerve supply of the digestive system.

a9. Mention the topographical position, afferent and efferent lymph drainage of the digestive system.

a10. Set the comparative points of the various organs in the digestives system with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b2. Identify the different surface markings of the animal's digestive system.
b3. Identify isolated organs of the digestive system in different animal.
b4. Differentiate the organs of the digestive system in different animal.
b5. Predict the effect on movement and function of the digestive organs caused by paralysis of specific nerves.
b6. Differentiate between the normal and abnormal position and deviated movements and malformations of the different parts of the system.
b7. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal class.
b8. Compare between thedigestive organs in different animal species.
b9. Relate structure-functions relation of those organs system components.
b10. Explain the interrelationships within and between anatomical and physiological aspects of the digestive system.
b11. Correlate the anatomical facts to the clinical problems.
b12. Analyze the gained anatomical facts of importance in the field of practice.
b13. Distinguish the site of organs of the digestive system in different animal..
b14. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b15. Estimate the problems related to the organs in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated and assembled organs of the digestive system.
c2. Coordinate the radiographic anatomy of the digestive system using orographic way to clarify some field problems.
c3. Interpret graphs of anatomical and physiological data
c4. Differentiate between isolated organs of this system.
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of the system parts.
c7. Interpret on clinical findings in the digestive system based on known normal anatomy background.
c8. Dissect probably different regions of animal's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.

d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Comparative anatomy of digestive system 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Development and growth of the digestive system.	10	10	-
	2. Functional structure of the digestive system.	10	10	-
	3. General anatomy and comparative of the mouth cavity.	12	6	6
	4. General anatomy and comparative of the esophagus.	12	6	6
	5. General anatomy and comparative of the pharynx.	12	6	6
	6. General anatomy and comparative of the monolocular stomach.	12	6	6
	7. General anatomy and comparative of the multilocular stomach	20	12	8
	8. General anatomy and comparative of the small intestine.	28	10	8
	9. General anatomy and comparative of the large intestine.	16	14	4
	10. Applied anatomy of the digestive system	20	10	10
	Total	**144**	**90**	**54**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.
5.1.2.Educational animal models, bones and preserved specimens.
5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.
5.2.2. Freshly died cadavers of laboratory animals.
5.2.3. Educational models.
5.2.4. Prepared bones from euthanatized animals.
5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).
5.3.2. Preparation of colored posters and slide presentation.
5.3.3. Preparation of bones and preserving specimens.

5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1,a2, a4, a5, a6, a7, a8, a9, a10	b5, b6,b7, b8, b9, b10, b11, b12, b13, b14, b15	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b15	c1, c2, c4, c5, c6, c8, c9, c10	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
Written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Written exams	50%
Student activities	-----
Total	100%

6- List of references

8.1. <u>Notes and books:</u>

None

8.2. <u>Essential books:</u>

8.2.1. Atlas of rabbit anatomy,(R. BaroneC Pavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. <u>Recommended textbooks</u>:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski.

1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net

VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland,http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf SayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department
Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Cooperative anatomy of the digestive system 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Development and growth of the digestive system.	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. Functional structure of the digestive system.	3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. General anatomy and comparative of the mouth cavity.	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. General anatomy and comparative of the esophagus.	10, 11	2,4,6,7,8	7,13	7,8	
	5. General anatomy and comparative of the pharynx.	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. General anatomy and comparative of the monolocular stomach.	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. General anatomy and comparative of the multilocular stomach	16,17,18	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. General anatomy and comparative of the small intestine.	19, 20,21	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. General anatomy and comparative of the large intestine.	22.23.24	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. Applied anatomy of the digestive system	25,26	2,4,6,7, 9	12	6,7,8	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M5-ANAT
Course title :	Comparative anatomy of urogenital system.
Academic year:	Postgraduate students.
Program title:	Masterin Vet. Med. Sciences.
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

Provide the postgraduate studentsknowledge and skills related to urogrnital system of domestic animals.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the urinary system of domestic animals.

a2. Conclude the typical structure of the genital system of domestic animals.

a3. Ascertain the surface landmarks of the underlying viscera.

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Recall the correct anatomical terms when giving topographical description of directional or positional anatomical detail.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the urinary, male genital and female genital systems of domestic animals.

a8. Mention the topographical position of different parts of genital system in domestic animals.

A9. Set the comparative points of the genital organs in domestic animals with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b2. Identify the different surface markings of the animal's pelvis.
b3. Identify isolated specimens of genital system of domestic animals.
b4. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal class.
b5. Compare between the urinary, male and female organs in domestic animals.
b6. Relate structure-functions relation of those organs system components.
b7. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.
b8. Correlate the anatomical facts to the clinical problems.
b9. Analyze the gained anatomical facts of importance in the field of practice.
b10. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b11. Estimate the problems related to the visceral organs in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated specimens of genital system of domestic animals.
c2. Coordinate the radiographic anatomy of the pelvis to clarify some field problems.
c3. Interpret graphs of anatomical and physiological data.
c4. Differentiate between isolated organs of urogenital systemanimals.
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of domesticanimals.
c7. Interpret on clinical findings inside domestic animals based on known normal anatomy background.
c8. Dissect probably different regions of animal's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.
d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Comparative anatomy of urogenital system 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Comparative anatomy of urinary system (kidney, ureters, urinary bladder and urethra)	12	6	6
	2. Dissection of equine abdominal cavity	12	6	6
	3. Comparative anatomy of ovaries and fallopian tubes	12	6	6
	4. Comparative anatomy of uterus	16	8	8
	5. Comparative anatomy of female external genitalia	12	6	6
	6. Dissection of equine female pelvis	12	6	6
	7. Comparative anatomy of testes and scrotum	16	8	8
	8. Comparative anatomy of male accessory genital glands	12	6	6
	9. Comparative anatomy of male external genitalia	12	6	6
	10. Dissection of equine male pelvis	12	6	6
	11- Surface anatomy of equine perineal and inguinal regions	16	8	8
	Total	**144**	**72**	**72**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.

5.1.2.Educational animal models, bones and preserved specimens.

5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.

5.2.2. Freshly died cadavers of laboratory animals.

5.2.3. Educational models.

5.2.4. Prepared bones from euthanatized animals.

5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).

5.3.2. Preparation of colored posters and slide presentation.

5.3.3. Preparation of bones and preserving specimens.

5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
written Exam	a1,a2, a4, a5,	b5, b6,b7, b8, b9,	c1, c2, c3, c4, c5	d1

	a6, a7, a8, a9,	b10, b11		
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10, b11	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b11	c1, c2, c4, c5, c6, c8, c9	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
written exams	50%
Student Activities	----
Total	100%

6- List of references

8.1. Notes and books:

None

8.2. Essential books:

8.2.1. Atlas of rabbit anatomy,(R. BaroneC Pavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/

Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland, http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf SayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U (a)	I.S (b)	P.P.S (c)	G.T.S (d)
Postgraduate students Comparative anatomy of urogenital system 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Comparative anatomy of urinary system (kidney, urters, urinary bladder and urethra)	1, 2, 3	1,3,5,6,9	1,2,3,4	1, 2,6,7,8,9	1-8
	2. Dissection of equine abdominal cavity	4, 5, 6	1,3,4,5,6,9	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Comparative anatomy of ovaries and fallopian tubes	7, 8, 9	1,2,4,6,7,9	7,8,9,10,11	3,4,6,7,8	
	4. Comparative anatomy of uterus	10, 11, 12, 13	2,4,6,7,8	7,11	7,8	
	5. Comparative anatomy of female external genitalia	14, 15, 16	2,4,5,6,7,9	7,8,9,10,11	3, 4,5,6,7,8	
	6. Dissection of equine female pelvis	17, 18, 19	2,4,6,7,9	7,8,9,10,11	3, 4, 5,6,7,8	
	7. Comparative anatomy of testes and scrotum	20, 21, 22, 23	2,4,5,6,7,9	7,8,9,10,11	3, 4,5,6,7,8	
	8. Comparative anatomy of male accessory genital glands	24, 25, 26	2,4,5,6,7,9	7,8,9,10,11	3, 4, 5,6,7,8	
	9. Comparative anatomy of male external genitalia	27, 28, 29	2,4,6,7,	7,8,9,10,11	5,6,7,8	
	10. Dissection of equine male pelvis	30, 31, 32	2,4,6,7, 9	11	6,7,8	
	11- Surface anatomy of equine perineal and inguinal regions	33, 34, 35, 36	1,2	11	6,7,8	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M6-ANAT
Course title :	Comparative anatomy of Respiratory system.
Academic year:	Postgraduate students.
Program title:	Master in Vet. Sciences (anatomy & embryology)
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in comparative anatomy of the rspiratory system, the postgraduate student will be able to recognize the fundamentals of their gross, comparative and appliedanatomy of the rspiratory system.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the respiratory system in different animal species.

a2. Conclude the structure of the respiratorysystemin domesticated animal.

a3. Ascertain the surface landmarks of the respiratoryorgans in different animal species..

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Recall the correct anatomical terms when giving topographical description of directional or positional anatomical detail.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the respiratorysystem in different animal.

a8. Conclude the typical structures of the nerve supply of the respiratorysystem.

a9. Mention the topographical position, afferent and efferent lymph drainage of the respiratorysystem.

a10. Set the comparative points of the various organs in the respiratorysystem with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b2. Identify the different surface markings of the animal's respiratorysystem.
b3. Identify isolated organs of the respiratorysystem in different animal.
b4. Differentiate the organs of the respiratorysystem in different animal.
b5. Predict the effect on movement and function of the respiratoryorgans caused by paralysis of specific nerves.
b6. Differentiate between the normal and abnormal position and deviated movements and malformations of the different parts of the system.
b7. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal class.
b8. Compare between therespiratoryorgans in different animal species.
b9. Relate structure-functions relation of those organs system components.
b10. Explain the interrelationships within and between anatomical and physiological aspects of the respiratorysystem.
b11. Correlate the anatomical facts to the clinical problems.
b12. Analyze the gained anatomical facts of importance in the field of practice.
b13. Distinguish the site of organs of the respiratorysystem in different animal..
b14. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b15. Estimate the problems related to the organs in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated and assembled organs of the respiratorysystem.
c2. Coordinate the radiographic anatomy of the respiratorysystem using orographic way to clarify some field problems.
c3. Interpret graphs of anatomical and physiological data
c4. Differentiate between isolated organs of this system.
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of the system parts.
c7. Interpret on clinical findings in the respiratorysystem based on known normal anatomy background.
c8. Dissect probably different regions of animal's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.
d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Comparative anatomy of the respiratory system 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Development and growth of the respiratorysystem.	10	10	-
	2. Functional structure of the respiratorysystem.	10	10	-
	3. General anatomy and comparative of the nose and nasal cavity.	24	12	12
	4. General anatomy and comparative of the nasal cartilages.	14	6	8
	5. General anatomy and comparative of the pharynx.	14	6	8
	6. General anatomy and comparative of the larynx.	14	6	8
	7. General anatomy and comparative of the trachea.	14	6	8
	8. General anatomy and comparative of the bronchial tree	14	6	8
	9. General anatomy and comparative of the lung and pleura.	14	6	8
	10. Applied anatomy of the respiratory system	16	8	8
	Total	**144**	**76**	**68**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.
5.1.2.Educational animal models, bones and preserved specimens.
5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.
5.2.2. Freshly died cadavers of laboratory animals.
5.2.3. Educational models.
5.2.4. Prepared bones from euthanatized animals.
5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).
5.3.2. Preparation of colored posters and slide presentation.

5.3.3. Preparation of bones and preserving specimens.
5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
written Exam	a1,a2, a4, a5, a6, a7, a8, a9, a10	b5, b6,b7, b8, b9, b10, b11, b12, b13, b14, b15	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b15	c1, c2, c4, c5, c6, c8, c9, c10	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
written exams	50%
Student activities	-----
Total	100%

6- List of references

8.1. Notes and books:

None

8.2. Essential books:

8.2.1. Atlas of rabbit anatomy,(R. BaroneC Pavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/

Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland,http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. ashrafSayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department
Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Comparative anatomy the respiratory system 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Development and growth of the respiratorysystem.	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. Functional structure of the respiratorysystem.	3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. General anatomy and comparative of the nose and nasal cavity.	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. General anatomy and comparative of the nasal cartilages.	10, 11	2,4,6,7,8	7,13	7,8	
	5. General anatomy and comparative of the pharynx.	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. General anatomy and comparative of the larynx.	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. General anatomy and comparative of the trachea.	16,17,18	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. General anatomy and comparative of the bronchial tree	19, 20,21	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. General anatomy and comparative of the lung and pleura.	22.23.24	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. Applied anatomy of the respiratory system	25,26	2,4,6,7, 9	12	6,7,8	

Beni-Suef University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M7-ANAT
Course title :	Anatomy of cardiovascular and lymphatic systems.
Academic year:	Postgraduate students.
Program title:	Master of Vet. Med. Sciences.
Degree:	Master of anatomy and embryology.
Contact hours/ week	4 hours per week (2hr theoretical and2hr practical).
Course coordinator:	Dr. Ashraf Sayed Awaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

This course aims to provide the postgraduate studentsknowledge and skills related to cardiovascular and lymphatic systems of different domestic animals.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the cardiovascular system (heart and large blood vessels).

a2. Conclude the structure of the lymphatic system (lymph nodes and lymph vessels).

a3. Ascertain the surface landmarks of the underlying bones structures (main nerves, vessels and viscera).

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Recall the correct anatomical terms when giving topographical description of directional or positional anatomical detail.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the cardiovascular and lymphatic systems of different domestic animals.

a8. Mention the topographical position, afferent and efferent lymph drainage in ox.

a9. Set the comparative points of the various visceral organs in laboratory animals with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b2. Explain the anatomical features of the heart and large blood vessels of equine.
b3. Set the course and distribution of the blood vessels of equine.
b4. Asses the lymph nodes and normal lymph pass-ways in bovine body.
b5. Identify the different surface markings of the animal's body.
b6. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal.
b7. Relate structure-functions relation of those organs system components.
b8. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.
b9. Correlate the anatomical facts to the clinical problems.
b10. Analyze the gained anatomical facts of importance in the field of practice.
b11. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b12. Estimate the problems related to the cardiovascular and lymphatic systems in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape proper site for vascular ligation during surgical interference.
c2. Locate the superficial lymph nodes of ox.
c3. Coordinate the radiographic anatomy of vascular pattern to clarify some field problems.
c4. Interpret graphs of anatomical and physiological data
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of laboratory animals.
c7. Interpret on clinical findings related to cardiovascular and lymphatic system based on known normal anatomy background.
c8. Dissect probably different regions of animal's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.
d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.

d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Anatomy of cardiovascular and lymphatic systems 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Anatomy of heart	16	8	8
	2. Blood supply of head and neck	16	8	8
	3. Blood supply of thorax and thoracic limb	16	8	8
	4. Blood supply of abdominal viscera	16	8	8
	5. Blood supply of pelvic cavity and pelvic limb	16	8	8
	6. lymph centers lymph vessels of head and neck	16	8	8
	7. lymph centers lymph vessels of thorax and thoracic limb	16	8	8
	8. lymph centers and lymph vessels of abdominal viscera	16	8	8
	9. lymph centers lymph vessels of pelvic cavity and pelvic limb	16	8	8
	Total	**144**	**72**	**72**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.
5.1.2.Educational animal models, bones and preserved specimens.
5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.
5.2.2. Freshly died cadavers of laboratory animals.
5.2.3. Educational models.
5.2.4. Prepared bones from euthanatized animals.
5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).
5.3.2. Preparation of colored posters and slide presentation.
5.3.3. Preparation of bones and preserving specimens.
5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
written Exam	a1,a2, a4, a5, a6, a7, a8, a9,	b5, b6,b7, b8, b9, b10, b11, b12,	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b12	c1, c2, c4, c5, c6, c8, c9, c9	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
written exams	50%
Student activities	-----
Total	100%

6- List of references

8.1. <u>Notes and books:</u>

None

8.2. <u>Essential books:</u>

8.2.1. Atlas of rabbit anatomy,(R. Barone C Pavaux, PC Blin P. Cuq, 1973): Masson et Cie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová &J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. <u>Recommended textbooks</u>:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing. ***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251, Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmed http://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/

Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland, http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf Sayed Awaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. Zein ElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of cardiovascular & lymphatic systems 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Anatomy of heart	1, 2	1,3,5,6,9	1,2,3,4	1, 2,6,7,8,9	1-8
	2. Blood supply of head and neck	3, 4, 5	1,3,4,5,6,9	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Blood supply of thorax and thoracic limb	6, 7, 8	1,2,4,6,7,9	7,8,9,10,11,12	3,4,6,7,8	
	4. Blood supply of abdominal viscera	9, 10, 11	2,4,6,7,8	7,12	7,8	
	5. Blood supply of pelvic cavity and pelvic limb	12, 13, 14	2,4,5,6,7,9	7,8,9,10,11,12	3, 4,5,6,7,8	
	6. lymph centers lymph vessels of head and neck	15, 16, 17	2,4,6,7,9	7,8,9,10,11,12	3, 4, 5,6,7,8	
	7. lymph centers lymph vessels of thorax and thoracic limb	18, 19, 20	2,4,5,6,7,9	7,8,9,10,11,12	3, 4,5,6,7,8	
	8. lymph centers and lymph vessels of abdominal viscera	21, 22, 23	2,4,5,6,7,9	7,8,9,10,11,12	3, 4, 5,6,7,8	
	9. lymph centers lymph vessels of pelvic cavity and pelvic limb	24, 25, 26	2,4,6,7	7,8,9,10,11,12	5,6,7,8	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M8-ANAT
Course title :	Anatomy of nervous system and endocrine glands.
Academic year:	Postgraduate students.
Program title:	Master of Vet. Med. Sciences (laboratory animals).
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2hr practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

This course aims to provide the postgraduate studentsknowledge and skills related to cardiovascular and lymphatic systems of different domestic animals.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the nervous system.

a2. Conclude the typical structure of the system of the domestic animals.

a3. Ascertain the surface landmarks of the underlying structures (main nerves, vessels, viscera and endocrine glands).

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Recall the correct anatomical terms when giving topographical description of directional or positional anatomical detail.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the nervous and lymphatic system of domestic animals.

a8. Conclude the typical structures of the central nervous system, peripheral nervous system, autonomic nervous system and endocrine glands.

a9. Mention the topographical position of cranial and peripheral nerves in domestic animals.

a10. Set the comparative points of the nervous system in domestic animals with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Distinguish the origin of different peripheral nerves.

b2. Identify the affect of the autonomic nervous system on the animal's body.

b3. Predict the effect on limb stance and locomotion caused by paralysis of specific nerves.

b4. Differentiate between the normal and abnormal position and deviated movements and malformations of the different joint in both limbs of laboratory animals.

b5. Relate structure-functions relation of the nervous system component.

b6. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.

b7. Correlate the anatomical facts to the clinical problems.

b8. Analyze the gained anatomical facts of importance in the field of practice.

b9. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.

b10. Estimate the problems related to the visceral organs in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Apply the anatomy facts in solving and explanation of different clinical problems.

c2. Coordinate the computed tomography and cross sectional anatomy of the different body regions to clarify some field problems.

c3. Locate the proper areas for nerve block for surgical interference.

c4. Differentiate between different forms of paralysis of equine limbsanimals.

c5. Perform postmortem dissection of horse.

c6. Interpret on clinical findings based on known normal anatomy background.

c7. Dissect probably different regions of animal's body.

c8. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.

d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.

d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.

d4. Maintain a professional image concerning behavior, dress and speech.

d5. Be responsible toward work.

d6. Communicate effectively with public, colleagues and appropriate authorities.

d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.

d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Anatomy of nervous system & endocrine glands 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Gross anatomy of brain and cranial cavity	**24**	**12**	**12**
	2. Gross anatomy of spinal cord and spinal meninges	**24**	**12**	**12**
	3. Gross anatomy cranial nerves	**28**	**14**	**14**
	4. Gross anatomy of spinal nerves	**28**	**14**	**14**
	5. Gross anatomy of autonomic nerves and endocrine glands	**20**	**10**	**10**
	6. Sites of local nerve block of different body regions	**20**	**10**	**10**
	Total	**144**	**72**	**72**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.

5.1.2.Educational animal models, bones and preserved specimens.

5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.

5.2.2. Freshly died cadavers of laboratory animals.

5.2.3. Educational models.

5.2.4. Prepared bones from euthanatized animals.

5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).

5.3.2. Preparation of colored posters and slide presentation.

5.3.3. Preparation of bones and preserving specimens.

5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
written Exam	a1,a2, a4, a5, a6, a7, a8, a9,	b5, b6,b7, b8, b9, b10	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10	c1, c2, c3, c4, c5, c6, c7, c8	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b10	c1, c2, c4, c5, c6, c8	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
written exams	50%
Student activities	-----
Total	100%

6- List of references

8.1. <u>Notes and books:</u>

None

8.2. <u>Essential books:</u>

8.2.1. Atlas of rabbit anatomy,(R. BaroneC Pavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. <u>Recommended textbooks</u>:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King,

DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/

Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland,http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf SayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department
Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of nervous system& and endocrine glands 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Gross anatomy of brain and cranial cavity	1, 2,3,4	1,3,5,6,9	1,2,3,4	1, 2,6,7,8	1-8
	2. Gross anatomy of spinal cord and spinal meninges	5,6,7,8	1,3,4,5,6,9	1,2,3,4,5,6	1, 2,6,7,8	
	3. Gross anatomy cranial nerves	9, 10, 11, 12, 13	1,2,4,6,7,9	7,8,9,10	3,4,6,7,8	
	4. Gross anatomy of spinal nerves	14, 15, 16, 17, 18	2,4,6,7,8	7,10	7,8	
	5. Gross anatomy of autonomic nerves and endocrine glands	19, 20, 21, 22	2,4,5,6,7,9	7,8,9,10	3, 4,5,6,7,8	
	6. Sites of local nerve block of different body regions	23, 24, 25, 26	2,4,6,7,9	7,8,9,10	3, 4, 5,6,7,8	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M9-ANAT
Course title :	General and special embryology.
Academic year:	Postgraduate students.
Program title:	Master of Vet. Med. Sciences (anatomy and embryology).
Degree:	Master.
Contact hours/ week	4 hours per week (2hr theoretical and 2 practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:
Provide the postgraduate studentsknowledge and skills related to general and special embryology of domestic animals.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Recall the correct anatomical terms related to embryology.
a2. Distinguish the different stages of prenatal development of domestic animals.
a3. Mention the stages of gametogenesis and its components.
a4. Conclude the stem cells and their differentiation.
a5. Elicit the different types of ova.
a6. Recognize the different body tissue resulted from the gastrulation.
a7. Conclude the structures of the fetal membranes, fetal fluids and placenta.
a8. Set the comparative points of the different types of placenta of domestic animals.
a9. Conclude the main stages of development of digestive system.
a10. Set the stages of prenatal development of urogenital system.
a11. Elicit the stages of development of the brain and spinal cord.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of embryo, feotus, plastula and morula.

b2. Compare between embryonic and adult stem cell.
b3. Identify the stages of the gametogenesis and the process of fertilization.
b4. Identify the stem cells of different body tissues.
b5. Differentiatebetween the different types of ova of domestic animals.
b6. Predict the different body tissue resulted from the stage of gastrulation.
b7. Distinguish the formation of fetal membranes and fetal fluids
b8. Differentiate between the fetal membranes of birds and that of domestic animals.
b9. Distinguish the role of placenta barrier.
b10. Classify the different types of placenta.
b11. Relate the different types of terratomas to the normal prenatal development.
b12. Explain the different stages of development of digestive system.
b13. Distinguish the prenatal development of ruminantstomach.
b14. Analyze the diversity of shape of umbilicus to the normal developed one.
b15. Identify the different stages of development of brain and spinal cord
b16. Estimate the problems in development of the brain and spinal cord and its fate.
b17. Distinguish the prenatal development of urogenital system.
b18. Predict the different malformation of kidney during prenatal development.

c-Professional and practical skills

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

c1. Detect the advancement of stem cell application as a therapy.
c2. Draw the different types of ova, fetal membranes and placenta.
c3. Tabulate the tissues resulted from the gastrulation in different animals
c4. Differentiate the histological slides of different embryonic stages.
c5. Apply the embryonic facts in detection of different malformation.
c6. Interpret on different terratoms in relation to normal embryonic facts.

d-General and transferable skills

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

d1.Appreciate the team working and time management.
d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students General and special embryology 4 hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Gametogenesis, ovulation and fertilization	14	10	4
	2. Segmentation and stem cell formation	12	8	4
	3. Gastrulation	12	8	4
	4. Formation of fetal membranes and fetal fluids	12	8	4
	5. Placenta and placental barrier	12	8	4
	6. Prenatal development of digestive system	16	12	4
	7. Prenatal development of ruminant stomach	12	8	4
	8. Prenatal development of urinary system	16	12	4
	9. Prenatal development of male genital system	16	12	4
	10. Prenatal development of female genital system	16	12	4
	11. Prenatal development of nervous system	12	8	4
	Total	**144**	**106**	**44**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.

5.1.2.Educational animal models, bones and preserved specimens.

5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.

5.2.2. Freshly died cadavers of laboratory animals.

5.2.3. Educational models.

5.2.4. Prepared bones from euthanatized animals.

5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).

5.3.2. Preparation of colored posters and slide presentation.

5.3.3. Preparation of bones and preserving specimens.

5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
written Exam	a2, a3, a4, a5, a6, a7, a8, a9,	b1, b2, b3, b5, b6, b7, b8, b9, b12,	c2, c3, c4, c5, c6	d1

	a10, a11	b13, b15		
Practical Exam				
Oral Exam	a1-a4, a5, a6, a7	b1-b18	c1, c7	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
written exams	50%
Student activities	------
Total	100%

6- List of references

8.1. Notes and books:

None

8.2. Essential books:

8.2.1. Atlas of rabbit anatomy,(R. BaroneC Pavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW

Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***
8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html
Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html

Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland, http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf SayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students General and special embryology 4hours/weak (Lec. 2hr/wk - Pract. 2hr/wk)	1. Gametogenesis, ovulation and fertilization	1, 2	1,3,4	1,3,5	2,4	1-8
	2. Segmentation and stem cell formation	3, 4	2, 4	2, 4	1, 5, 6	
	3. Gastrulation	5, 6, 7, 8	2, 6	6	3, 5, 6	
	4. Formation of fetal membranes and fetal fluids	9, 10	7	7, 8	2	
	5. Placenta and placental barrier	11, 12	8	9,10	2	
	6. Prenatal development of digestive system	13, 14, 15, 16	9	11,12,13,14	4, 5,6	
	7. Prenatal development of ruminant stomach	17, 18	9	13,14	5,6	
	8. Prenatal development of urinary system	19, 20	10	17, 18	4, 5, 6	
	9. Prenatal development of male genital system	21, 22	10	17, 18	4, 5, 6	
	10. Prenatal development of female genital system	23, 24	10	17, 18	4, 5, 6	
	11. Prenatal development of nervous system	25, 26	11	15, 16	4, 5, 6	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M10-ANAT
Course title :	Anatomy of the fowl.
Academic year:	Postgraduate students.
Program title:	Master of Vet. Med. Sciences (fowl).
Degree:	Master.
Contact hours/ week	3 hours per week (2hr theoretical and 1hr practical).
Course coordinator:	Dr. Ashraf SayedAwaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in anatomy of fowl, the postgraduate student will be able to recognize the fundamentals of their gross,comparative and appliedanatomy.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the locomotor system with special references tothe thoracic limb, pelvic limb and thorax of fowl.

a2. Conclude the typical structure of the digestive, nervous, lymphatic, urogenital, respiratory and circulatory systems of the fowl.

a3. Ascertain the surface landmarks of the underlying bones, muscles, tendons andinternal structures (main nerves, vessels and viscera).

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Recall the correct anatomical terms when giving topographical description of directional or positional anatomical detail.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the digestive, urinary, male genital, female genital, nervous and lymphatic system of fowl.

a8. Conclude the typical structures of the central nervous system, peripheral nervous system, autonomic nervous system and sense organs.

a9. Mention the topographical position, afferent and efferent lymph drainage in fowl.

a10. Set the comparative points of the various visceral organs in fowl with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b2. Identify the different surface markings of the animal's limbs and thorax.
b3. Identify isolated bones of the limbs of the fowl.
b4. Differentiate the bones and joints of limbs for fowl.
b5. Predict the effect on limb stance and locomotion caused by paralysis of specific nerves or muscle tendon rupture.
b6. Differentiate between the normal and abnormal position and deviated movements and malformations of the different joint in both limbs of fowl.
b7. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal class.
b8. Compare between the respiratory, digestive, urinary, male and female organs in fowl.
b9. Relate structure-functions relation of those organs system components.
b10. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.
b11. Correlate the anatomical facts to the clinical problems.
b12. Analyze the gained anatomical facts of importance in the field of practice.
b13. Distinguish the site of origin of the different peripheral nerves.
b14. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b15. Estimate the problems related to the visceral organs in different animals based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated and assembled bones of fowl.
c2. Coordinate the radiographic anatomy of the bones and thorax to clarify some field problems.
c3. Interpret graphs of anatomical and physiological data
c4. Differentiate between isolated organs of fowl.
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of fowl.
c7. Interpret on clinical findings inside fowl based on known normal anatomy background.
c8. Dissect probably different regions of animal's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.

d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the animal's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Anatomy of fowl 3hours/weak (Lec. 2hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of fowl	9	6	3
	2. The muscular and skeletal systems of fowl	10	6	3
	3. Digestive system of fowl	17	10	5
	4. Nervous system of fowl	10	6	3
	5. Urinary system of fowl	10	6	3
	6. Male genital system of fowl	11	6	3
	7. Female genital system of fowl	12	6	4
	8. Respiratory system of fowl	12	6	4
	9. The circulatory system of fowl	12	6	4
	10. The lymphatic system of fowl	10	6	3
	11. Special sense organs of fowl	10	6	3
	Total	**108**	**70**	**38**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.
5.1.2.Educational animal models, bones and preserved specimens.
5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.
5.2.2. Freshly died cadavers of fowl.
5.2.3. Educational models.
5.2.4. Prepared bones from euthanatized animals.
5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).

5.3.2. Preparation of colored posters and slide presentation.
5.3.3. Preparation of bones and preserving specimens.
5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1,a2, a4, a5, a6, a7, a8, a9, a10	b5, b6,b7, b8, b9, b10, b11, b12, b13, b14, b15	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b15	c1, c2, c4, c5, c6, c8, c9, c10	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
Written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Written exams	50%
Student activities	-----
Total	100%

6- List of references

8.1. <u>Notes and books:</u>

None

8.2. <u>Essential books:</u>

8.2.1. Atlas of rabbit anatomy,(R. BaroneCPavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.AColour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&JHorák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includesindex.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,andRodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***

8.3.6. Biology andDiseasesofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html

Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland,http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf SayedAwaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department

Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of fowl 3hours/weak (Lec. 2hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of fowl	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of fowl	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of fowl	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of fowl	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of fowl	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of fowl	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of fowl	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of fowl	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of fowl	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of fowl	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of fowl	25, 26	1,2	12	6,7,8	

University
Faculty of Veterinary Medicine

University: Beni-Suef University, Egypt.

Faculty: Faculty of Veterinary Medicine.

Department: Anatomy and Embryology

Course specification (2016-2017)

A- Administrative Information:

Course Code:	M11-ANAT
Course title :	Anatomy of the fish.
Academic year:	Postgraduate students.
Program title:	Master of Vet. Med. Sciences (fish).
Degree:	Master.
Contact hours/ week	3 hours per week (2hr theoretical and 1hr practical).
Course coordinator:	Dr. Ashraf Sayed Awaad.
External evaluator(s)	Prof. Dr. Essam Mohamed Moustafa El-Gindy
Date of course approval:	

B-Professional information

1- Overall aims of course:

This course aims to:

After completing the postgraduate course in anatomy of fish, the postgraduate student will be able to recognize the fundamentals of their gross, comparative and appliedanatomy.

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding:

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

a1. Distinguish the principle component of the locomotor system with special references to thescales, skin and fins of fish.

a2. Conclude the typical structure of the digestive, nervous, lymphatic, urogenital, respiratory and circulatory systems of the fish.

a3. Ascertain the surface landmarks of the underlying spines, bones, muscles, tendons and internal structures (main nerves, vessels and viscera).

a4. Set the correlation of the anatomical facts to the clinical problems.

a5. Recall the correct anatomical terms when giving topographical description of directional or positional anatomical detail.

a6. Elicit the nomenclature for the planes used in anatomical presentation of specimens.

a7. Recognize a comprehensive knowledge about the gross anatomy of the digestive, urinary, male genital, female genital, nervous and lymphatic system of fish.

a8. Conclude the typical structures of the central nervous system, peripheral nervous system, autonomic nervous system and sense organs.

a9. Mention the topographical position, afferent and efferent lymph drainage in fish.

a10. Set the comparative points of the various visceral organs in fowl with special reference to their clinical significances.

b-Intellectual skills:

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

b1. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b2. Identify the different surface markings of the animal's thorax.
b3. Identify isolated bones of the fish.
b4. Differentiate the bonesfor fish.
b5. Predict the effect locomotion caused by paralysis of specific nerves or muscle tendon rupture.
b6. Differentiate between the normal and abnormal position and deviated movements and malformations of fish.
b7. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal class.
b8. Compare between the respiratory, digestive, urinary, male and female organs in fish.
b9. Relate structure-functions relation of those organs system components.
b10. Explain the interrelationships within and between anatomical and physiological systems of the fish's body.
b11. Correlate the anatomical facts to the clinical problems.
b12. Analyze the gained anatomical facts of importance in the field of practice.
b13. Distinguish the site of origin of the different peripheral nerves.
b14. Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
b15. Estimate the problems related to the visceral organs in different fishes based on the gained knowledge about their normal anatomy and position.

c-Professional and practical skills

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

c1. Detect the shape and position of isolated and assembled bones of fish.
c2. Coordinate the radiographic anatomy of the bones and thorax to clarify some field problems.
c3. Interpret graphs of anatomical and physiological data
c4. Differentiate between isolated organs of fish.
c5. Apply the anatomy facts in solving and explanation of different clinical problems.
c6. Perform postmortem dissection of fish.
c7. Interpret on clinical findings inside fish based on known normal anatomy background.
c8. Dissect probably different regions of fish's body.
c9. Use correctly the surgical instrumentation to carry out cadaver dissection.

d-General and transferable skills

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

d1.Appreciate the team working and time management.

d2.Value the ethics and respect to all individuals inside and outside the dissecting room and pay appropriate respect to the fish's cadavers.
d3.Recognize the scope and limits of their role as students as well as the necessity to seek and apply collaboration with other colleagues.
d4. Maintain a professional image concerning behavior, dress and speech.
d5. Be responsible toward work.
d6. Communicate effectively with the public, colleagues and appropriate authorities.
d7. Achieve computer skills necessary to make use of medical databases and use the internet for communication.
d8. Prepare a scientific paper and essay.

3-Topics and contents

Course	Topic	Total no. of hours	Lect.	Pract.
Postgraduate students Anatomy of fowl 3hours/weak (Lec. 2hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of fish	9	6	3
	2. The muscular and skeletal systems of fish	9	6	3
	3. Digestive system of fish	15	10	5
	4. Nervous system of fish	9	6	3
	5. Urinary system of fish	9	6	3
	6. Male genital system of fish	9	6	3
	7. Female genital system of fish	10	6	4
	8. Respiratory system of fish	10	6	4
	9. The circulatory system of fish	10	6	4
	10. The lymphatic system of fish	9	6	3
	11. Special sense organs of fish	9	6	3
	Total	**108**	**70**	**38**

4-Teaching and learning methods

5.1. Lectures (brain storming, discussion) in which one or more of the following facilities are used:

5.1.1. Whiteboardand data-show presentations.
5.1.2.Educational animal models, bones and preserved specimens.
5.1.3. Illustrations, anatomical charts, CD's, PowerPoint slides and recorded anatomy videos.

5.2.Laboratory sessions in which one or more of the following facilities are used:

5.2.1. Tutor presentation followed by students' small group sessions.
5.2.2. Freshly died cadavers of fish.
5.2.3. Educational models.
5.2.4. Prepared bones from euthanatized animals.
5.2.5. Demonstrating formalin preserved cadavers.

5.3.Independent (laboratory and home assignments supervised by tutor)

5.3.1. Writing reports and assignments (computer researches and faculty library attendance).

5.3.2. Preparation of colored posters and slide presentation.
5.3.3. Preparation of bones and preserving specimens.
5.3.4. Group discussion.

5-Student assessment

5.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/ Assessments methods			
	K&U	I.S	P&P.S	G.S
Written Exam	a1,a2, a4, a5, a6, a7, a8, a9, a10	b5, b6,b7, b8, b9, b10, b11, b12, b13, b14, b15	c1, c2, c3, c4, c5	d1
Practical Exam	a1, a2, a3, a4, a6, a7	b1, b2, b3, b4, b7, b8, b10, b11, b12	c1, c2, c3, c4, c5, c6, c7, c8, c9	d1, d2, d3, d4, d5,d6, d7, d8
Oral Exam	a1-a7	b1-b15	c1, c2, c4, c5, c6, c8, c9, c10	d1,d2, d3,d4,d5, d6

5.2. Assessment schedules/semester:

Method	Week(s)
Practical exams	Managed by department administration
Written exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student Activities	Along the semester

5.3. Weight of assessments:

Assessment	Weight of assessment
Practical and oral exams	50%
Written exams	50%
Student Activities	-----
Total	100%

6- List of references

8.1. <u>Notes and books:</u>

None

8.2. <u>Essential books:</u>

8.2.1. Atlas of rabbit anatomy,(R. BaroneC Pavaux, PC BlinP.Cuq, 1973): Masson etCie, Paris, Library of Congress Catalog Card number: 72-92999. ISBN: 2-225 35 5307.
This book is available online.

8.2.2. Laboratory anatomy of the white rat,(RB Chiasson, 1958), 4th edition. Wcb, Wm. C. Brown Company Publishers Dubuque, Iowa.
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.2.3.A Colour Atlas of Anatomy of Small Laboratory Animals, Volume 1: Rabbit, Guinea Pig, (P Popesko, V Rajtová&J Horák, 1992).Wolfe Publishing Ltd, ISBN: 0-7020-2699-9
This book is available in the library of faculty of Veterinary Medicine, Beni-Suef Univ.

8.3. Recommended textbooks:

8.3.1. Atlas of the rabbit brain and spinal cord,(J.W. Shek, G.Y. Wen, H.M. Wisniewski. 1986), National Library of Medicine, Cataloging in Publication, Shck, J.W.Basel; New York: Karger,Includes index.ISBN 3-8055-3814-6.***This book is available online.***

8.3.2. Colour atlas of vertebrate anatomy, an integrated text and dissection guide, (GM King, DRN Custance, 1982) Blackwell Scientific Publishers, Bolsover Press.***This book is available online.***

8.3.3. Small Animal Anatomy:The Essentials, (TO McCracken, RA Kainer, D Carlson 2008),Blackwell Publishing Professional2121 State Avenue, Ames, Iowa 50014, USA. Blackwell Publishing.***This book is available online.***

8.3.4. Ferrets, Rabbits,and Rodents Clinical Medicine and Surgery, (KE. Quesenberry and JW Carpenter, 2012), 3rdedition, ISBN: 978-1-4160-6621-73251,Riverport Lane St. Louis, Missouri 63043 Saunders, an imprint of Elsevier Inc.***This book is available online.***

8.3.5. Rabbit Medicine and Surgery for Veterinary Nurses, (MFraser, S Girling, 2009),ISBN: 978-1-4051-4706-4, Wiley-Blackwell.***This book is available online.***

8.3.6. Biology andDiseases ofthe Ferret (JG Fox, RP Marini, 2014), 3rd edition, Wiley-Blackwell, ISBN: 978-0-470-96045-5. ***This book is available online.***

8.4. Journals, Websites ……..etc

Journals

Anatomia, Histologia, Embryologia - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264
The Anatomical Record - Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494
Journal of Anatomy- Wiley Online Library
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580
Annals of Anatomy - Journal-Elsevier
http://www.journals.elsevier.com/annals-of-anatomy/
Journal of Veterinary Anatomy
http://www.vetanat.com/
Indian Journal of Veterinary Anatomy
http://epubs.icar.org.in/ejournal/index.php/IJVA
International Journal of Animal Anatomy and Physiology
http://internationalscholarsjournals.org/journal/ijaap
Journal of Advanced Research in Veterinary Science and Technology
http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-and-Technology.html
Beni-Suef Veterinary Medical journal
http://www.bsuv.bsu.edu.eg/vetmed.aspx#

Websites

Google searchwww.google.com
Sciencedirecthttp://www.sciencedirect.com.
Pubmedhttp://www.Pubmed.
Colorado State university onlinehttp://www.online.colostate.edu/courses/VS/VS333.dot
The university of adelaidehttps://www.adelaide.edu.au/course-outlines/104377/1/sem-1/
Veterinary anatomy courseshttp://vanat.cvm.umn.edu/vanatCourses/CVM6100.html

Anatomy museumhttp://skeletonmuseum.com/
Animals skeletons-www.animalskeletons.net
VET Veterinary Educational Toolshttp://www.cvmbs.colostate.edu/vetneuro/
Education platformhttp://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm
Veterinary anatomyhttp://vetmedicine.about.com/od/anatomy/
Online Veterinary Anatomy Museumhttp://www.onlineveterinaryanatomy.net/
Imaging Anatomy Websitehttp://vetmed.illinois.edu/courses/imaging_anatomy/
Real 3D anatomyhttp://www.real3danatomy.com/
Interactive Programs for Canine Anatomy http://www.tabanat.com
Virtual Canine Anatomy http://www.cvmbs.colostate.edu/vetneuro/VCA3/vca.html
Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/
Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/
Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html
Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/
Interactive drawings for veterinary anatomists http://www.images4u.com/
Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/
Canine planar anatomy http://vanat.cvm.umn.edu/planar/
Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/
Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/
Anatomical Society of Great Britain and Ireland,http://www.anatsoc.org.uk/
Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html
Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/
Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/
Functional anatomy of the horse foot
http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm

---

Course Coordinator

Dr. Ashraf Sayed Awaad
Assistant professor of Anatomy and Embryology
Faculty of Veterinary Medicine,
Beni-Suef University

Head of the department
Prof. Dr. ZeinElabdeinAdam
Professor and Head of Anatomy and Embryology department, Faculty of Veterinary Medicine,
Beni-Suef University

Course specification Matrix

Topic		Week	Intended learning outcomes of course (ILOs)			
			K&U(a)	I.S(b)	P.P.S (c)	G.T.S (d)
Postgraduate students Anatomy of fowl 3hours/weak (Lec. 2hr/wk - Pract. 1hr/wk)	1. Surface anatomy and body regions of fowl	1, 2	1,3,5,6,10	1,2,3,4	1, 2,6,7,8,9	1-8
	2. The muscular and skeletal systems of fowl	2, 3, 4	1,3,4,5,6,10	1,2,3,4,5,6	1, 2,6,7,8,9	
	3. Digestive system of fowl	5, 6, 7, 8, 9	1,2,4,6,7,10	7,8,9,10,11,12,14,15	3,4,6,7,8	
	4. Nervous system of fowl	10, 11	2,4,6,7,8	7,13	7,8	
	5. Urinary system of fowl	12, 13	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	6. Male genital system of fowl	14, 15	2,4,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	7. Female genital system of fowl	15, 16	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4,5,6,7,8	
	8. Respiratory system of fowl	16, 17, 18, 19	2,4,5,6,7,10	7,8,9,10,11,12,14,15	3, 4, 5,6,7,8	
	9. The circulatory system of fowl	20, 21, 22	2,4,6,7,	7,8,9,10,11,12	5,6,7,8	
	10. The lymphatic system of fowl	23, 24, 25	2,4,6,7, 9	12	6,7,8	
	11. Special sense organs of fowl	25, 26	1,2	12	6,7,8	