

COURSE SPECIFICATION (2018-2019)
Second Academic Year - First Semester (ANE: 2114)

1- BASIC INFORMATION:

Course title:	Comparative Anatomy (Part I).
Course code:	ANE: 2114
Academic year:	Second academic year - First semester.
Program title:	Bachelor degree of Veterinary Medical Sciences (B.V.Sc.)
Responsible department:	Department of Anatomy and Embryology.
Contact hours/week:	5 hours/week (lecture: 3 hrs./week - practical: 2 hrs./week).
Approval date:	٢٠ / / بتاريخ () تم اعتماد توصيف المقرر في مجلس القسم رقم

2- PROFESSIONAL INFORMATION:

Overall aims of the course:

This course aims to:

Enable the students of the second academic year to progress to the next preclinical and clinical academic years with thorough understanding of veterinary anatomy fundamentals, beginning with special development of respiratory, digestive and urogenital systems. In addition to the comparative gross anatomy of digestive, urinary and genital organs of domestic animals.

3- INTENDED LEARNING OUTCOMES OF THE COURSE (ILOs):

a- Knowledge and understanding:

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

- a1.** Recall correct anatomical terms when giving topographical description of anatomical details.
- a2.** Recognize a comprehensive knowledge about gross anatomy of digestive and urogenital organs of domestic animals.
- a3.** Enumerate the bones and muscles of equine abdomen and pelvis.
- a4.** Set the comparative points of various abdominal organs in domestic animals with special reference to their clinical significances.
- a5.** Enumerate differential landmarks of lumbar, sacral and caudal vertebrae.
- a6.** Mention developmental stages of digestive and urogenital organs.

B- Intellectual skills:

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

- b1.** Differentiate the urinary, genital and digestive organs of different domestic animals.
- b2.** Identify different surface markings of equine abdomen and pelvis.
- b3.** Identify isolated bones of equine abdomen and pelvis.
- b4.** Differentiate the bones of animals' abdomen and pelvis.

- b5.** Recognize the origin and insertion of different skeletal muscles of equine abdomen and pelvis.
- b6.** Describe the muscles and major named vessels and nerves of equine abdomen and pelvis in terms of functional groups.
- b7.** Recognize the process of development of digestive, respiratory, urinary and genital organs and its relation to congenital malformations.
- b8.** Determine the normal anatomical structures, topography and characteristic features of different visceral organs (digestive, urinary and genital) in domestic animals.
- b9.** Relate structure-functions of (digestive, urinary and genital) components.
- b10.** Explain the interrelationships within and between anatomical and physiological systems of the animal's digestive, urinary and genital organs.
- b11.** Estimate the problems related to the visceral organs in different animals based on the gained knowledge about their normal anatomy and position and correlate the anatomical facts to the clinical problems

c- Professional and practical skills:

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

- c1.** Correlate anatomical facts (development and gross anatomy of digestive, urinary and genital organs) with their applied aspects in veterinary field.
- c2.** Draw labeled diagrams of visceral organs associated with body regions, cavities, abdomen and pelvis.
- c3.** Detect the shape and position of isolated and assembled bones (lumbar, sacrum and caudal) of different domestic animals.
- c4.** Coordinate the radiographic anatomy of abdomen and pelvis to clarify some field problems.
- c5.** Differentiate between isolated viscera of different domestic animals.
- c6.** Apply the anatomy and embryology facts in explanation of different clinical problems.
- c7.** Implement the knowledge about surface anatomy on live animals and apply anatomical facts of veterinary anatomy in relation to surgery, medicine, and physical methods of diagnosis.

d- General and transferable skills:

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

- d1.** Work in a multidisciplinary team.
- d2.** Prepare a scientific paper and essay.
- d3.** Regulate and control tasks and resources.
- d4.** Communicate effectively and non-verbally.
- d5.** Utilize computers and internet skills.

4- COURSE CONTENTS AND TOPICS:

Course	Topics	Pract.	Lect.	Total no. of hours
Second Year – First Semester – ANE: 2114 Comparative anatomy (part I) 5 hours/week (lect. 3hours/week - pract. 2 hours/week)	1- Comparative gross anatomy of digestive system (mouth cavity - lips – cheeks - hard palate - soft palate – tongue - salivary glands – pharynx –esophagus – stomach – duodenum – ileum – jejunum – cecum – colon – rectum – anal canal – rectum – liver - pancreas)	10	15	25
	2- Development of digestive organs (primitive gut - mouth cavity - salivary glands – pharynx - pharyngeal apparatus – esophagus - stomach – intestine – pancreas – liver - gall bladder - cloaca) - development of respiratory organs (larynx- trachea- lungs).	-	3	3
	3- Comparative gross anatomy of urinary system (kidneys – ureters - urinary bladder - urethra).	2	6	8
	4- Comparative gross anatomy of male genital system (testes – accessory genital glands – penis – scrotum – urethra - prepuce).	4	6	10
	5- Comparative gross anatomy of female genital system (Ovaries - uterine tube – uterus – urethra – vagina – external genitalia).	2	3	5
	6- Development of urogenital system (derivatives of hind gut – kidneys, ureters – urinary bladder – urethra – accessory genital glands - ovaries – testes – external genitalia).	-	6	6
	7- Lumbar vertebrae - caudal vertebrae - sacrum of different domestic animals.	2	-	2
	8- Dissection of equine abdomen (abdominal wall - abdominal cavity).	4	-	4
	9- Dissection of equine pelvis (male and female).	2	-	2
	T o t a l		26	39

5- TEACHING AND LEARNING METHODS:

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

- 5.1.1. White board and PowerPoint slides and recorded anatomy videos (data-show presentations).
- 5.1.2. Bones and preserved anatomical specimens.
- 5.1.3. Illustrations and anatomical charts.

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 dissected animal (donkeys) specimens

5.2.3. Prepared bones from euthanatized animals.

5.2.4. Dissected specimens of digestive, urinary and genital organs.

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

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

5.3.2. Preparation of colored posters and slide presentations.

5.3.3. Preparation of bones and preserved specimens.

5.3.4. Group discussion.

6- TEACHING AND LEARNING METHODS FOR STUDENTS WITH DISABILITIES:

N.B. Students with physical disabilities are non-applicable in the faculty.

While students with learning difficulties:

-The students are encouraged to contact department staff members in their announced office hours to discuss their individual needs for learning accommodation that may affect their ability to participate in course activities or meet the course requirements.

-At end of the practical sessions, overall courses revision was done for all student groups to overcome the problem of non-attendance in any practical session.

7- STUDENTS ASSESSMENT:

7.1. Assessments methods:

Method	Matrix alignment of the measured ILOs/Assessments methods			
	K&U	IS	P&P.S	G.S
Written exam	a1-a6	b1, b6, b7, b8, b9, b10, b11	c1, c2	-
Practical exam	a1-a6	b1, b2, b3, b4, b5, b6, b8	c1, c2, c3, c4, c5, c6, c7	d3
Oral exam	a1-a6	b1, b5, b6, b7, b8, b9, b10, b11	c1, c2, c6, c7	d4
Student activities	--	-	-	d1-d5

7.2. Assessment schedules/semester:

Method	Week(s)
Written exam	At the 15 th week, managed by faculty administration.
Practical exam	At the 14 th week, managed by department administration.
Oral exam	At the 15 th week, managed by department administration.
Student activities	Along the semester, supervised by department staff members.

7.3. Weight of assessments:

Assessment	Degrees	Weight
Written exam.	25	50%
Practical exam.	10	20%
Oral exam.	10	20%
Student activities	5	10%
Total	50	100%

8- LIST OF REFERENCES:

8.1. Department notes:

- 8.1.1. Textbook of veterinary anatomy**, second year students, (deposit # at International Egyptian library and archives) – prepared by staff members of anatomy and embryology department, faculty of veterinary medicine, Beni-Suef University.
- 8.1.2. Practical courses of veterinary anatomy**, second year students, (deposit # at International Egyptian library and archives) – prepared by staff members of anatomy and embryology department, faculty of veterinary medicine, Beni-Suef University.

8.2. Essential textbooks:

(Available in library of faculty of Veterinary Medicine, Beni-Suef University).

- 8.2.1.** Sisson and Grossman's the anatomy of the domestic animals, 5th ed. (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. 4th ed. (Frandsen, R.D., Wilke, W.I. and Fails, A.D., 2003), 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 ed. (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), 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 horse, an illustrated text, 2nd ed. (Budras, K.D., Sack, W.O. and Röck, S., 1994), Mosby work. Hanover Germany, ISBN: 07234-19213.
- 8.2.6.** Bovine anatomy, an illustrated text, 1st ed. (Budras, K.D., Habel, R.E., Wiinsche, A. and Buda, S. 2003), Hanover, Germany, ISBN: 3-89993-000-2.
- 8.2.7.** Text book of veterinary anatomy (Dyce, K.M.; Sack, W.O. and Wensing, C.J.G.1987), Saunders Co., Philadelphia, London, Toronto, Montreal, Sydney, Tokyo, ISBN: 0-7216-1332-2.
- 8.2.8.** The Embryology of the domestic animals, developmental mechanisms and malformations (Nodern, D.M. and De-Lahunta, A.1986), Williams and Wilkins, Baltimore, London, Los Anglos, Sydney, ISBN: 0-683-06545-9.

8.3. Recommended textbooks: (Available online via GOOGLE search).

- 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), 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.

8.4. Journals, Websites etc.

8.4.1. Journals:

1. Anatomia, Histologia, Embryologia - Wiley Online Library:
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1439-0264](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264)
2. The Anatomical Record - Wiley Online Library:
[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1932-8494](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494)
3. Journal of Anatomy- Wiley Online Library
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1469-7580](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580)
4. Annals of Anatomy - Journal-Elsevier:
<http://www.journals.elsevier.com/annals-of-anatomy/>
5. Journal of Veterinary Anatomy: <http://www.vetanat.com/>
6. Indian Journal of Veterinary Anatomy:http://epubs.icar.org.in/ejournal/index.php/IJVA_
7. International Journal of Animal Anatomy and Physiology
<http://internationalscholarsjournals.org/journal/ijaap>

8.4.2. Websites

- 1- Google search: www.google.com
- 2- Science Direct: <http://www.sciencedirect.com>.
- 3- PubMed: <http://www.Pubmed>.
- 4- YouTube: www.youtube.com
- 5- The University of Adelaide: <https://www.adelaide.edu.au/course-outlines/104377/1/sem-1/>
- 6- Veterinary anatomy courses: <http://vanat.cvm.umn.edu/vanatCourses/CVM6100.html>
- 7- Anatomy museum: <http://skeletonmuseum.com/>
- 8- Animals skeletons: www.animalskeletons.net
- 9- VET Veterinary Educational Tools: <http://www.cvmbc.colostate.edu/vetneuro/>
- 10- Sheep brain dissection guide: <http://academic.uofs.edu/departments/psych/sheep/>
- 11- Veterinary anatomy: <http://vetmedicine.about.com/od/anatomy/>
- 12- Online Veterinary Anatomy Museum: <http://www.onlineveterinaryanatomy.net/>
- 13- Imaging Anatomy Website: http://vetmed.illinois.edu/courses/imaging_anatomy/
- 14- Real 3D anatomy: <http://www.real3danatomy.com/>
- 15- Interactive Programs for Canine Anatomy: <http://www.tabanat.com>
- 16- Virtual Canine Anatomy: <http://www.cvmbc.colostate.edu/vetneuro/VCA3/vca.html>
- 17- Veterinary anatomy museum: <http://vanat.cvm.umn.edu/museum/>
- 18- Veterinary neurobiology laboratory preview/review: <http://vanat.cvm.umn.edu/neurolab/>
- 19- Carnivore and developmental anatomy lectures: <http://vanat.cvm.umn.edu/TFFlect.html>
- 20- Rooney's guide to the dissection of the horse: <http://www.vet.cornell.edu/oed/horsedissection/>
- 21- Interactive drawings for veterinary anatomists: <http://www.images4u.com/>
- 22- Veterinary anatomy: directions and planes: <http://vanat.cvm.umn.edu/anatDirections/>

Course Coordinator
Dr. Mohamed Kamal Merai

Head of the department
Dr. Mohamed Gomaa Tawfik

MATRIX OF COURSE CONTENTS AND INTENDED LEARNING OUTCOMES (ILOS)

Course	Topics	Week	Intended learning outcomes (ILOS)			
			K&U.S (a)	I.S (b)	P&P.S (c)	G&T.S (d)
Second Year – First Semester – ANE: 2114 Comparative anatomy (part I)- 5 hours/week (lect. 3hr/week and pract. 2hr/week)	1- Comparative gross anatomy of digestive system (mouth cavity - lips – cheeks - hard palate - soft palate – tongue - salivary glands – pharynx – esophagus – stomach – duodenum – ileum – jejunum – cecum – colon – rectum – anal canal – rectum – liver - pancreas)	1, 2, 3, 4, 5	a1, a2, a4	b1, b8, b9, b10, b11	c1, c2, c5, c6, c7	d1, d2, d3, d4, d5
	2- Development of digestive organs (primitive gut - mouth cavity - salivary glands – pharynx - pharyngeal apparatus – esophagus - stomach – intestine – pancreas – liver - gall bladder - cloaca) - development of respiratory organs (larynx- trachea- lungs).	6	a1, a2, a6	b7, b11	c1, c2, c6	
	3- Comparative gross anatomy of urinary system (kidneys – ureters - urinary bladder - urethra).	6, 7, 8	a1, a2, a4	b1, b8, b9, b10, b11	c1, c2, c5, c6, c7	
	4- Comparative gross anatomy of male genital system (testes – accessory genital glands – penis – scrotum – urethra - prepuce).	7, 8, 9, 10	a1, a2, a4	b1, b8, b9, b10, b11	c1, c2, c5, c6, c7	
	5- Comparative gross anatomy of female genital system (Ovaries - uterine tube – uterus – urethra – vagina – external genitalia).	9, 11	a1, a2, a4	b1, b8, b9, b10, b11	c1, c2, c5, c6, c7	
	6- Development of urogenital system (derivatives of hind gut – kidneys, ureters – urinary bladder – urethra – accessory genital glands - ovaries – testes – external genitalia).	12, 13	a1, a2, a6	b7, b11	c1, c2, c6, c7	
	7- Lumbar vertebrae - caudal vertebrae - sacrum of different domestic animals.	10	a1, a3, a5	b2, b3, b4	c1, c2, c3, c4, c6, c7	
	8- Dissection of equine abdomen (abdominal wall - abdominal cavity).	11, 12	a1, a3, a4	b2, b5, b6	c1, c2, c4, c5, c6, c7	
	9- Dissection of equine pelvis (male and female).	13	a1, a3	b2, b5, b6	c1, c2, c4, c5, c6, c7	