

COURSE SPECIFICATION (2018-2019)
Second Academic Year - Second Semester (ANE: 2220)

1- BASIC INFORMATION:

Course title:	Comparative Anatomy (Part II).
Course code:	ANE: 2220
Academic year:	Second academic year - Second 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 blood vessels of head and neck, nervous system, lymphatic system and special anatomy of the sense organs. In addition to the applied anatomy.

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 nervous, lymphatic systems as well as sense organs of domestic animals.
- a3. Mention developmental stages of the nervous system and sense organs.
- a4. Enumerate the bones and muscles and differential landmarks of equine head and neck.
- a5. Mention the topographical position, afferent and efferent lymph drainage in domestic animals.
- a6. Ascertain the surface landmarks of underlying bones, muscles, tendons and internal structures (main nerves, vessels and viscera).
- a7. Set the correlation of the anatomical facts to the clinical problems.

B- Intellectual skills:

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

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

- b2.** Relate structure-functions for components of the nervous, lymphatics and sense organs.
- b3.** Determine the normal anatomical structures and topography of brain, cranial and spinal nerves in animals.
- b4.** Distinguish the anatomical features, area innervated and clinical importance of cranial and spinal nerves.
- b5.** Assess the normal gross appearance of lymph nodes and normal lymph vessels in meat producing animals.
- b6.** Describe the muscles and major named vessels and nerves of the equine head and neck in terms of functional groups.
- b7.** Describe the anatomical features of the sense organs (eyes and ears).
- b8.** Identify different surface markings on equine head and neck.
- b9.** Estimate the problems related to nervous, lymphatics and sense organs in different animals based on the gained knowledge about their normal anatomy and position.
- b10.** 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 with their applied aspects in the veterinary field.
- c2.** Draw labeled diagrams of visceral organs, structures associated with body regions, head, neck and sense organs.
- c3.** Investigate the normal anatomical structures of equine brain and spinal cord.
- c4.** Interpret the clinical findings of different lymph nodes in meat producing animals.
- c5.** Detect the shape and position of isolated and assembled bones of head and neck in domestic animals.
- c6.** Coordinate the radiographic anatomy of the head and neck to clarify some field problems.
- c7.** Apply the anatomy facts in solving and explanation of different clinical problems.
- c8.** 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.
- c9.** Interpret the clinical findings inside different animal bodies based on known normal anatomy background.

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 – Second Semester – ANE: 2220 Comparative anatomy (part II) 5 hours/week (lect. 3 hours/week - pract. 2 hours/week)	1- Blood supply of head and neck (external carotid arteries – internal carotid arteries – occipital arteries)	2	12	14
	2- Gross anatomy of nervous system (brain - meninges – cranial nerves – spinal cord – spinal nerves – autonomic nervous system) - development of the nervous system and sense organs.	-	6	6
	3- Gross anatomy of lymphatic system (large lymph trunks lymph ducts – lymph centers (head – neck – thorax- thoracic limb – abdomen - pelvis– pelvic limb).	-	12	12
	4- Gross anatomy of sense organs (eye and ear)	2	6	8
	5- Applied anatomy (sites of local nerve block in different regions of the body) – sites of joint injections – topographical position and landmarks on different organs on live animal- applied anatomy of digestive organs - applied anatomy of respiratory organs - applied anatomy of urogenital organs.	-	3	3
	5- Gross anatomical features of skull – mandible – hyoid apparatus.	6	-	6
	5- Comparative features of the cervical vertebrae (Atlas and axis).	4	-	4
	6- Dissection of head and neck (muscles –blood vessels – lymphatics and special structures).	12		12
T o t a l		26	39	65

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 nervous and sense 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 is 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-a7	b1, b2, b3, b4, b7, b9, b10	c2, c3	-
Practical exam	a1-a7	b1, b2, b6	c1, c3, c4, c5, c6, c7, c8, c9	d3
Oral exam	a1-a7	b1, b2, b3, b4, b6, b7, b8, b9, b10	c4, c7, c8, c9	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.cvmb.colostate.edu/vetneuro/>
- 10- Sheep brain dissection guide: <http://academic.uofs.edu/department/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.cvmb.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 – Second Semester – ANE: 2220 Comparative anatomy (part II) 5 hours/week (lect. 3 hours/week - pract. 2 hours/week)	1- Blood supply of head and neck (external carotid arteries – internal carotid arteries – occipital arteries)	1, 2	a1, a6, a7	b1, b6, b10	c1, c2, c7, c8, c9	d1, d2, d3, d4, d5
	2- Gross anatomy of nervous system (brain - meninges – cranial nerves – spinal cord – spinal nerves – autonomic nervous system) - development of the nervous system and sense organs.	3, 4, 5, 6	a1, a2, a3, a7	b1, b2, b3, b4, b9, b10	c1, c2, c3, c7, c8, c9	
	3- Gross anatomy of lymphatic system (large lymph trunks lymph ducts – lymph centers (head – neck – thorax- thoracic limb – abdomen - pelvis– pelvic limb).	7, 8, 9, 10	a1, a2, a5, a7	b1, b2, b5, b9, b10	c1, c2, c4, c7, c8, c9	
	4- Gross anatomy of sense organs (eye and ear)	11, 12	a1, a2	b1, b2, b7, b10	c1, c2, c7, c8, c9	
	5- Applied anatomy (sites of local nerve block in different regions of the body) – sites of joint injections – topographical position and landmarks on different organs on live animal- applied anatomy of digestive organs - applied anatomy of respiratory organs - applied anatomy of urogenital organs.	13	a1, a6, a7	b1, b4, b5, b9, b10	c1, c2, c6, c7, c8, c9	
	5- Gross anatomical features of skull – mandible – hyoid apparatus.	1, 2, 4	a1, a4, a6, a7	b1, b8, b10	c1, c2, c5, c6, c7, c8, c9	
	5- Comparative features of the cervical vertebrae (Atlas and axis).	5, 6	a1, a4, a6, a7	b1, b8, b10	c1, c2, c5, c6, c7, c8, c9	
	6- Dissection of head and neck (muscles – blood vessels – lymphatics and special structures).	7, 8, 9, 10, 12, 13	1,4,6,7	1,6,8,10	c1, c2, c6, c7, c8, c9	