

COURSE SPECIFICATION (2018-2019)
First Academic Year - First Semester (ANE: 1101)

1- BASIC INFORMATION:

Course title:	Anatomy and Embryology (General).
Course code:	ANE: 1101
Academic year:	First 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:	4 hours/week (lecture: 2 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:

Provide students of the first academic year with the basic anatomical terminology and principle information about the general osteology, general arthrology, and different developmental stages of domestic animals and comparative anatomy of thoracic limbs in domestic animals. In addition to the special gross anatomy of birds, fish and rabbits.

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.** Recognize different technical and topographical anatomical terms.
- a2.** Distinguish principle components of locomotor system with special references to thoracic limbs.
- a3.** Ascertain surface landmarks of underlying bones, muscles, tendons and internal structures.
- a4.** Mention different types of joints and joint movements.
- a5.** Mention different steps of prenatal stages of animal's development.
- a6.** Recognize the basic anatomical structures of birds, rabbit and fish bodies.
- a7.** Mention the normal structures of equine hooves.

b- Intellectual skills:

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

- b1.** Identify different surface markings of the animal's thoracic limbs.
- b2.** Identify isolated bones of thoracic limbs in domestic animals.
- b3.** Differentiate between bones of thoracic limbs in domestic animal.
- b4.** Differentiate between normal and abnormal position and deviated movements and malformations of different joint in both limbs of equines.

- b5.** Recognize the origin and insertion of different skeletal muscles of equine thoracic limbs.
- b6.** Describe the muscles and major vessels and nerves of equine thoracic limbs.
- b7.** Describe the process of development of different body parts and its relation to the congenital malformations.
- b8.** Describe different structures of bones articulations.
- b9.** Compare between different types of synovial joints based on anatomical knowledge.
- b10.** Distinguish the characteristic features of each organ and/or structure in different animal species.
- b11.** Explain the interrelationships between anatomical and physiological systems of animal's body.
- b12.** Discuss essential normal gross anatomical structures of birds, rabbit and fish bodies.
- b13.** Describe gross anatomical structure of equine hooves in relation to its clinical importance.

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 different domestic animals.
- c2.** Coordinate the radiographic anatomy of limbs bones to clarify some field problems.
- c3.** Draw labeled diagrams of normal gross anatomical structures and developed organs/systems.
- c4.** Differentiate between isolated bones of thoracic limb in domestic animals.
- c5.** Apply the gained anatomical and embryological facts in explanation and solving of some clinical aspects.
- c6.** Perform postmortem dissection of poultry and rabbit based on anatomical knowledge.
- c7.** Interpret on clinical findings inside birds, rabbits and fish bodies based on anatomy background.
- c8.** Assess the viability and usefulness of birds, rabbits and fishes used for human food-intake depending on their normal gross appearance.

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
First Year – First Semester – ANE:1101 Anatomy and Embryology (General) 4 hours/week (lect. 2 hours/week - pract. 2 hours/week)	1- Introduction (Anatomical technical terms) - general osteology (skeletons - types of bones - bone structure).	-	2	2
	2- General arthrology (Definition - types of joints - fibrous joints, cartilaginous joints - synovial joints - types of movements).	-	4	4
	3- General embryology (terms – gametogenesis – ovulation – fertilization – cleavage – gastrulation – derivatives of germ layers – fetal membranes - placentation).	-	10	10
	4- Fowl anatomy (birds gross anatomy).	2	4	6
	5- Fish anatomy.	2	4	6
	6- Rabbits anatomy.	2	2	4
	7-Bones of the thoracic limbs of domestic animals (scapula – humerus - radius – ulna – carpus - metacarpus – digits - hoof).	12	-	12
	8-Dissection of the thoracic limb (muscles of lateral aspect - muscles of medial aspect - blood vessels - nerves).	8	-	8
	T o t a l	26	26	52

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 chicken, fishes and rabbits.

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	I.S	P&P.S	G.S
Written exam	a1-a7	b4, b7, b8, b9, b10, b11, b12,	c3, c5,	-
Practical exam	a1-a7	b1, b2, b3, b5, b6, b12, b13	c1, c2, c4, c6, c7, c8	d3
Oral exam	a1-a7	b1-b13	-	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**, first 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**, first 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)
First Year – First Semester – ANE:1101 Anatomy and Embryology (General) 4 hours/week (lect. 2 hours/week - pract. 2 hours/week)	1- Introduction (Anatomical technical terms) - general osteology (skeletons - types of bones - bone structure).	1	a1	b1	c3	d1, d2, d3, d4, d5
	2- General arthrology (Definition - types of joints - fibrous joints, cartilaginous joints - synovial joints - types of movements).	2, 3	a2, a4	b4, b8, b9, b11	c3	
	3- General embryology (terms – gametogenesis – ovulation – fertilization – cleavage – gastrulation – derivatives of germ layers – fetal membranes - placentation).	4, 5, 6, 7, 8	a5	b7, b11	c3, c5	
	4- Fowl anatomy (birds gross anatomy).	9, 10	a6	b10, b11, b12	c3, c6, c7, c8	
	5- Fish anatomy.	11, 12	a6	b10, b11, b12	c3, c6, c7, c8	
	6- Rabbits anatomy.	13	a6	b10, b11, b12	c3, c6, c7, c8	
	7-Bones of the thoracic limbs of domestic animals (scapula – humerus - radius – ulna – carpus - metacarpus – digits - hoof).	1, 2, 3, 4, 5, 6,	a3, a7	b1, b2, b3, b10, b11, b13	c1, c2, c3, c4	
	8-Dissection of the thoracic limb (muscles of lateral aspect - muscles of medial aspect - blood vessels - nerves).	7, 8, 10, 12	a3	b1, b5, b6, b10, b11	c3	