Beni-Suef University
Faculty of Veterinary Medicine

Course specification (2018-2019)

1-Basic information

Course Code:	ANE: 1101
Course title :	Anatomy and Embryology (General)
Academic year:	First Academic Year
Program title:	B. Sc. Veterinary Medical sciences
Contact hours/ week	4 hours/week, (Lecture 2hrs/week, Practical 2hrs/week)
Approval Date	

2-Professional information

Overall aimsof the course:

This course aims to:

- Provide the students with anatomical terminology and principle information about the general osteology and general arthrology.
- Provide them with the principle information about the different developmental stages of domestic animals.
- Enable them to gain skills for comparative anatomy of the thoracic limbs of the domestic animals.
- Provide the students with the basic information about the fowl, rabbit and fish anatomy.

3-Intendedlearningoutcomesof the course (ILOs)

a-Knowledgeand understanding:

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

a1. Recognize the different technical and topographical anatomical terms.
a2. Distinguish the principle component of the locomotor system with special references to the thoracic limb.
a3. Ascertain the surface landmarks of the underling bones, muscles, tendons and internal structures (main nerves, vessels and viscera).
a4. Set the correlation of the anatomical facts to the clinical problems.
a5. Mention the different prenatal stages of animal's development.
a6. Distinguish the basic anatomical structures of fowl, rabbit and fish body.
a7. Mention the normal structure of the equine hoof.

b-Intellectualskills:

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.
b3. Identify isolated bones of the limbs of the domestic species.
b4. Differentiate the bones of limbs for all animal species.
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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 equines.
b7. Recognize the origin and insertion of different skeletal muscles of equine thoracic limbs.
b8. Describe the muscles and major named vessels and nerves of the equine thoracic limb.
b9. Recognize the process of the development of different body parts and its relation to the congenital malformations.
b10. Determine the different types of articulations.
b11. Distinguish with evidence and confidence characteristic features of each organ and/or structure in each animal class.
b12. Compare between the types of synovial joints.
b13. Explain the interrelationships within and between anatomical and physiological systems of the animal's body.
b14. Discuss the essential normal anatomical structures of fowl, rabbit and fish bodies.
b15. Estimate the problems related to the intestine and lungs in poultry and rabbit based on the gained knowledge about their normal anatomy and position.
b16. Describe the different parts of the equine hoof and the related problems.
b17. Correlate the anatomical facts to the clinical problems.
b18. Analyze the gained anatomical facts of importance in the field of practice.

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 the bones and thorax to clarify some field problems.
c3. Draw labeled diagrams and illustrations of each normal anatomical structure and developed organs and systems.
c4. Interpret graphs of anatomical and physiological data
c5. Differentiate between isolated bones of different animals.
c6. Apply the anatomy and embryology facts in solving and explanation of different clinical problems.
c7. Perform postmortem dissection of poultry , rabbit and fish.
c8. Implement surface anatomy knowledge on the living poultry and in approaching some field cases.
c9. Interpret on clinical findings inside poultry, rabbit and fish bodies based on known normal anatomy background.
c10. Assess the viability and usefulness of fish used for food intake depends on the normal gross anatomy.
c11. Dissect probably different regions of animal's body.

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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.

4-Topics and contents

Course	Topic	Pract.	Lect.	Total no. of hours
First Year – First Semester Anatomy and Embryology General) 4 hours / weak (Lec. 2hrs/wk - Pract. 2hrs/wk)	1 – General osteology (Anatomical technical terms, skeletons, types of bones, bone structure).	-	2	2
	2– General arthrology (Definition, classification of joints, movements of joints).	-	4	4
	3– General embryology (Embryological terms gametogenesis, ovulation, fertilization, cleavage, gastrulation, placentation).	-	10	10
	4- Fowl anatomy	2	4	6
	5- Fish anatomy	2	4	6
	6- Rabbit anatomy	2	2	4
	7– Bones of the thoracic limbs of domestic animals (scapula, humerus, radius, ulna, carpus, metacarpus, digits, and hoof).	12	-	12
	8– Dissection of the thoracic limb (muscles of lateral aspect, muscles of medial aspect, blood vessels and nerves)	8	-	8
	Total	26	26	52

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5-Teaching and learning methods

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. 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 donkeys

5.2.3. Prepared bones from euthanatized animals.

5.2.4. Demonstrating formalin preserved cadavers.

5.2.5. Freshly died fowl and fish specimens.

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.

6-Teaching and learningmethods for the students with disabilities

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-Student 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	b5, b6, b9, b10, b11, b12, b13, b14, b15, b16, b17, b18,		d1
Practical Exam		b1, b2, b3, b4, b7, b8, b10, b11, b12,	c1-c11,	d1, d2, d3, d4, d5, d7
Oral Exam	a1-a7	b1-b18	c1, c2, c4, c5, c6, c8, c9, c10	d3, d6,

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7.2. Assessment schedules/semester:

Method	Week(s)
Writing exam	15th week
Practical exams	Managed by faculty administration
Oral Exams	Managed by department administration
Student Activities	Along the semester

7.3. Weight of assessments:

Assessment	Weight of assessment
Writing exam	50%
Practical exam	20%
oral exams	20%
Student activities	10%
Total	100%

8-List of references

8.1. Notes and books:

Department notes

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.

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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), 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

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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/
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

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	Topic	Week	Intended learning outcomes of course (ILOs)			
			K&U (a)	I.S (b)	I.S (c)	G.T.S (d)
First Year - First Semester Anatomy and Embryology (General) 4 hours / weak (Lec. 2hrs/wk - Pract. 2hrs/wk)	1- General osteology (anatomical technical terms, skeletons, types of bones, bone structure).	2	1	1	1	1-8
	2- General arthrology (definition, classification of joints, movements of joints).	3, 4	1, 2	1, 10, 12	2, 4	
	4- General embryology (embryological terms, gametogenesis, ovulation, fertilization, cleavage, gastrulation, placentation).	5, 6, 7, 8, 9	1, 4, 5	1, 9, 17	6	
	3- Fish anatomy (digestive, respiratory and urogenital systems)	10, 11,12	6	14, 17, 18	7, 9, 10	
	. 4– Fowl anatomy (digestive, respiratory and urogenital systems)	12, 13	6	14, 17, 18	7, 9	
	5- Rabbit anatomy (digestive, respiratory and urogenital systems)	14	6	14, 17, 18	7, 9	
	6- Bones of the thoracic limbs of domestic animals (scapula, humerus, radius, ulna, carpus, metacarpus, digits, hoof).	2, 3, 4, 5, 6, 7	1, 2, 3, 7	1, 2, 4, 5, 6, 11, 13, 16	1, 2, 3,4, 5	
	7- Dissection of the thoracic limb (muscles of lateral aspect, muscles of medial aspect, blood vessels and nerves).	8, 9, 10, 11	1, 2, 3, 4	1, 2, 5, 7, 8, 11, 13, 18	3, 11	