



Course Specification of Veterinary Anatomy (1)

I. Course Identification and General Information:						
1	Course Title:	Veterinary Anatomy (1)				
2	Course Number & Code:	ANT231				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	2			4
4	Study level/ semester at which this course is offered:	Second Year: First Semester				
5	Pre –requisite (if any):	FR112				
6	Co –requisite (if any):	None				
7	Program (s) in which the course is offered:	Bachelor Veterinary Medicine				
8	Language of teaching the course:	English				
9	Location of teaching the course:	Faculty of Veterinary Medicine				
10	Prepared by:	Dr. Saleh Ahmed Mohammed Ali Alomaisi				
11	Date of approval:					

II. Course description:
This course aimed to provide the students with knowledge, with anatomical terminology and principle information about the general anatomy of domestic animals that will enable them to gain skills for comparative anatomy of the limbs and thorax (bones, joints, muscles,

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main vessels and nerves), beside it also provide the students with the basic information about the fowl, rabbit and fish anatomy. This course covers embalming of animals including bone preparation for study, osteology, arthrology, myology of different domestic animals. Additionally, the innervation of thoracic, pelvic limbs of the horse. Also a brief description of poultry anatomy is described

Also a brief description of poultry anatomy is described.

III. Intended learning outcomes (ILOs) of the course:			
(A) Knowledge and Understanding:			
Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: Knowledge and Understanding.			
Program Intended Learning Outcomes (Sub-PILOs) in: Knowledge and Understanding		Course Intended Learning Outcomes (CILOs) in: Knowledge and Understanding	
After completing this program, students will be able to:		After completing this course, students will be able to:	
A1-	Demonstrate knowledge and understanding of concepts and principles of general culture, basic science, and supportive to veterinary medicine.	a1-	Recognize the basic anatomical topographical term, skeleton, types and structures of the bones, joints, muscles, tendons and internal structures (main nerves, vessels and viscera) in domestic animals.
A2-	Illustrates basic concepts, principles, and theories related to animal production, animal health and nutrition, behavior management,	a2-	Distinguish the basic anatomical structures of fowl, rabbit and fish body.

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breeding and care, and animal-related ethical Bloggs.			
Teaching And Assessment Methods For Achieving Learning Outcomes:			
Alignment of Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:			
Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding		Teaching strategies/methods to be used	Methods of assessment
completing this course, students will be able to:		-Lectures using board, data shows and multimedia aids. - brainstorm. - discussion. -Self-learning by preparing essay and presentations (computer and faculty library) -Practical training (Clinical demonstrations, practice of skills, and discussions). (a) Field visits (farms and villages) (b) General experimental animal teaching (c) Clinical and small group sessions (d) Outpatient clinic	-Written exam -Practical exam -Oral exam - Quizzes - Report assignments - Discussion
a1-	Recognize the basic anatomical topographical term, skeleton, types and structures of the bones, joints, muscles, tendons and internal structures (main nerves, vessels and viscera) in domestic animals.		
a2-	Distinguish the basic anatomical structures of fowl, rabbit and fish body.		

(B) Intellectual Skills:

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Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) Intellectual skills			
Program Intended Learning Outcomes (Sub- PILOs) in Intellectual skills		Course Intended Learning Outcomes (CILOs) of Intellectual Skills	
After completing this program, students will be able to:		After completing this course, students will be able to:	
B1-	Competently practices analytical and critical thinking skills in studying and assessing health problems and reading the results of animal medical examinations and in related sciences.	b1-	Analyze the diversity of knowledge in the term of anatomical characteristics of each organ structure.
B2-	Predicts an appropriate medical diagnosis for the most common disease states through analysis of clinical story data and the results of medical examinations of sick animal.	b2-	Differentiate between the normal and abnormal position and deviated movements and malformations of the different joint in both limbs of domestic animals.

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Intellectual Skills.		Teaching strategies/methods to be used	Methods of assessment
After completing this course, students will be able to:		-Lectures using board, data shows and multimedia aids. - brainstorm. - discussion. -Self-learning by preparing essay and presentations (computer and faculty library) -Practical training (Clinical demonstrations, practice of skills, and discussions). (a) Field visits (farms and villages) (b) General experimental animal teaching	-Written exam -Practical exam -Oral exam - Quizzes - Report assignment - Discussion
b1-	Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.		
b2-	Differentiate between the normal and abnormal position and deviated movements and malformations of the different joint in both limbs of domestic animals.		

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		(c) Clinical and small group sessions (d) Outpatient clinic	
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(C) Professional and Practical Skills:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: **Professional and Practical Skills**

Program Intended Learning Outcomes (Sub- PILOs) in Professional and Practical Skills		Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	
After completing this program, students will be able to:		After completing this course, students will be able to:	
C1-	Accurately records a comprehensive histological story of organ of the animal including information on healthy behavior and the necessary checks.	c1-	Illustrate the shape and the normal anatomical features of the parts of the skeleton and bones of domestic animals and position of isolated and assembled bones of different domestic animals.
C2-	Practicing practical, diagnostic, clinical and research skills, including the collection of samples in various fields of veterinary medicine and related sciences, in a safe and effective manner, taking into account the ethics of the profession.	c2-	Interpret on clinical findings inside domestic animals, fowl, rabbit and fish bodies based on known normal anatomy background.

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies/methods to be used	Methods of assessment
After completing this course, students will be able to:	-Practical training (Clinical demonstrations, practice of skills, and discussions).	Written exam -Practical exam

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c1-	Illustrate the shape and the normal anatomical features of the parts of the skeleton and bones of domestic animals and position of isolated and assembled bones of different domestic animals.	(a) Field visits (farms and villages) (b) General experimental animal teaching (c) Clinical and small group sessions (d) Outpatient clinic - Case study	-Oral exam - Quizzes - Report assignments - Discussion
c2-	Interpret on clinical findings inside domestic animals, fowl, rabbit and fish bodies based on known normal anatomy background.		

(D) General / Transferable Skills:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: **General and Transferable Skills**

Program Intended Learning Outcomes (PILOs) in General / Transferable skills		Course Intended Learning Outcomes (CILOs) in General / Transferable skills	
After completing this program, students will be able to:		After completing this course, students will be able to:	
D1-	Communicates effectively with Professional colleagues and animal owners and expresses his ideas clearly and objectively.	d1-	Communicate effectively with animal's owners and colleagues using appropriate communication skills.
D2-	Develops his scientific, professional and research capabilities and follow what is emerging in his field of specialization and using computer applications and information and communication technology.	d2-	Demonstrate appropriate professional behaviors in different practice situations.

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies/methods to be used	Methods of assessment
After completing this course, students will be able to:	-Self-learning by preparing essay and presentations	-Written exam -Practical exam -Oral exam

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d1-	Communicate effectively with animal's owners, public, colleagues using appropriate communication skills.	(computer and faculty library) - Scientific visits - discussions - Assignments	- Report assignment - Discussion - Note performance
d2-	Demonstrate appropriate professional attitudes and behaviors in different practice situations.		

IV. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect					
Order	Topic List / Units	CILOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	Introduction and anatomical terminology	a1- a2- b1- b2-c1- c2- d1- d2	-	2	4
2	General osteology (Classification and structural function relationship of all the bones forming the skeleton.).	a1- a2- b1- b2-c1- c2- d1- d2	Classification of bones according to the shape. Classification of skeleton according to location. Classification of bones according to bone matrix.	2	4
3	General arthrology (Definition, classification, anatomical structure of	a1- a2- b1- b2-c1- c2- d1- d2	Definition, classification of joints movements joints.	1	2

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	the joints of the animal body).				
4	Special arthrology (normal anatomical structure of the joints of the equine thoracic and pelvic limbs) and anatomy of the hoof	a1- a2- b1- b2-c1- c2- d1- d2	The pelvic symphysis Sacro- iliac Articulation Ligaments of the pelvic girdle Ilio- lumbar ligament Obturator Membrane	1	2
5	Comparative of bones of domestic animals and dissection of the thoracic limb of the horse.	a1- a2- b1- b2-c1- c2- d1- d2	Bones of of the thoracic limb of domestic animals (scapule, humerus, radius, ulna, carpus, metacarpus, digits and hoof.	1	2
6	General myology	a1- a2- b1- b2-c1- c2- d1- d2	What is the muscle Functions of the muscles	2	4
7	(Classification of muscles and structural function relationship of skeletal muscle and accessory structures of the muscles).	a1- a2- b1- b2-c1- c2- d1- d2	Classification of the muscular tissue Cardiac Muscle (Intermediate in quality between somatic and visceral muscles). Myoepithelium (Specialized epithelial cells with contractile properties).	2	4

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			Anatomy of muscle Various arrangement of skeletal muscle fibers		
8	Fowl anatomy	a1- a2- b1- b2-c1- c2- d1- d2	Avian integument. Skeletal system Coelomic cavities Digestive system Respiratory system Male reproductive system Female reproductive system	1	2
9	Rabbit anatomy	a1- a2- b1- b2-c1- c2- d1- d2	Digestive system Respiratory system	2	4
Number of Weeks /and Units Per Semester				14	28

b- Training Aspect:				
Order	Training Tasks	CILOs (symbols)	Number of weeks	Contact hours
1	Introduction and technical anatomical terminology	a1- a2- b1- b2-c1- c2- d1- d2	2	4

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2	General osteology (skeletons, types of bones, bone structure)	a1- a2- b1- b2-c1- c2- d1- d2	1	2
3	General arthrology (definition, classification of joints, movement joints)	a1- a2- b1- b2-c1- c2- d1- d2	1	2
4	Bones of of the thoracic limb of domestic animals (scapule, humerus, radius, ulna, carpus, metacarpus, digits and hoof.	a1- a2- b1- b2-c1- c2- d1- d2	1	2
5	Dissection of the thoracic limb muscles of lateral aspect, muscles of medial aspect, blood vessels and nerves.	a1- a2- b1- b2-c1- c2- d1- d2	2	6
6	Bones of the pelvic limb of different domestic animals(os-coxae, femur, tibia and fibula, tarsus, metatarsus).	a1- a2- b1- b2-c1- c2- d1- d2	1	2
7	Dissection of the pelvic limb muscles of lateral aspect, muscles of medial aspect, blood vessels and nerves	a1- a2- b1- b2-c1- c2- d1- d2	1	2
8	Dissection Fowl (external features, skeleton, digestive system, respiratory system, urinary system, male genital system, female genital system)	a1- a2- b1- b2-c1- c2- d1- d2	1	2
9	Dissection Rabbit (external features, skeleton, digestive system, respiratory system, urinary system, male genital system, female genital system)	a1- a2- b1- b2-c1- c2- d1- d2	1	2
10	Compare between the lungs of different domestic animals.	a1- a2- b1- b2-c1- c2- d1- d2	1	2

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11	Describe the muscles and major named vessels and nerves of the equine limbs and thorax in terms of functional groups.	a1- a2- b1- b2-c1- c2- d1- d2	2	4
Number of Weeks /and Units Per Semester			14	28

V. Teaching strategies of the course:
<ul style="list-style-type: none"> ▪ Lectures using board, data shows and multimedia aids. ▪ Self-learning by preparing essay and presentations (computer and faculty library) ▪ Brainstorm ▪ Discussion ▪ Cooperative learning ▪ Practical training (Clinical demonstrations, practice of skills, and discussions). <ul style="list-style-type: none"> (a) Field visits (farms and villages) (b) General experimental animal teaching (c) Clinical and small group sessions (d) Outpatient clinic ▪ Tutorial classes (small group teaching) <p>Interactive lectures (Brain storming, seminars, discussion).</p> <p>2-Practical lessons in dissecting room</p> <p>3- Embryology lab.</p> <p>4- Self learning followed by active learning (beer article and discussion in group).</p> <p>5- Audiovisual aids materials.</p> <p>6- Anatomy and embryology museum visit.</p> <p>7- Students presentations</p>
3-Assessment Methods:
<p>-Written exam</p> <p>-Practical exam</p>

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- Oral exam
- Quizzes
- Report assignments
- Discussion

VI. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes (CILOs symbols)
1	Participation quizzes and assignments	1-12	10	10%	a1- a2- b1- b2-c1-c2- d1- d2
2	Mid-semester exam	7	10	10%	a1- a2- b1- b2-c1-c2- d1- d2
3	Practice exam	13	20	20%	a1- a2- b1- b2-c1-c2- d1- d2
5	Oral exam	13	5	5%	a1- a2- b1- b2-c1-c2- d1- d2
	Final Exam	16	55	55%	a1- a2- b1- b2-c1-c2- d1- d2
	Total		100	100%	

VII. Students' Support:	
Office Hours/week	Other Procedures (if any)

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Saturday-Wednesday from 8:00 a.m.-2 p.m.	Student can contact me via email
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VIII. Learning Resource (MLA style or APA style)S:	
1- Required Textbook(s) (maximum two)	
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2- Recommended Readings and Reference Materials	
	<p>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.</p> <p>Dominique Penninck, Marc-André d'Anjou (2015) Atlas of Small Animal Ultrasonography, 2nd Edition</p> <p>Dyce ,K. M. , Wolfgang O. Sack , C. J. G. Wensing (2009): Textbook of Veterinary Anatomy, 4e</p> <p>Heide Schatten (2004):Germ Cell Protocols: Volume 1: Sperm and Oocyte Analysis (Methods in Molecular Biology).</p> <p>Horst Erich King and Hans-Georg Liebich (2009): Veterinary Anatomy of Domestic Mammals: Textbook and Colour Atlas</p> <p>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.</p> <p>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.</p> <p>Poul Hyttel , Fred Sinowatz , Morten Vejlested , Keith Betteridge (2009): Essentials of Domestic Animal Embryology, 1e.</p> <p>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.</p> <p>Thomas Colville, Joanna M. Bassert (2016) Clinical Anatomy and Physiology for Veterinary Technicians</p> <p>Victoria Aspinall and Melanie Cappello (2009): Introduction to Veterinary Anatomy and Physiology Textbook, 2e</p>

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	<p>William O. Reece (2009): Functional Anatomy and Physiology of Domestic Animals.</p>
3- Essential References	
	<p>Notes and books:</p> <p>Anatomy and physiology of farm animals. 6th edition (Frandsen, R.D., Wilke, W.I. and Fails, A.D., 2003), published by Lippicott Williams and Wilkins, Awolters Kluwer Company, ISBN: 0-7817-3358-8.</p> <p>Anatomy of the dromedary (Smuts, M.S. and Bezuidenhout, A.J., 1987), published by Clarendon press, Oxford, ISBN: 0-19-857188-7.</p> <p>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.</p> <p>Atlas anatomy of the horse, (G.A. Swielim, 1997), published by Faculty of veterinary medicine- Cairo, ISBN: 977-19-4770-2.</p> <p>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.</p> <p>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.</p> <p>David G. Smith, Michael P. Schenk (2011) A Dissection Guide and Atlas to the Fetal Pig</p> <p>Dyce, K. M., Wolfgang O. Sack & C. J. G. Wensing (2002); Textbook of Veterinary Anatomy 3rd edition</p> <p>Getty, R., 1975/Latest Edition. Sisson and Grossman's. The Anatomy of the Domestic Animals. W.B. Saunders Co. Philadelphia and London.</p> <p>Geza Zboray- Zsolt Kovacs- Gy6rgy Kriska .</p> <p>Herzog ,W. (2000); Skeletal Muscle Mechanics: From Mechanisms to Function</p> <p>Kenneth Kardong (2001); Vertebrates: Comparative Anatomy, Function, and Evolution</p>

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	<p>Kinga Molnar- Zsolt Palfia (2010) Atlas of Comparative Sectional Anatomy of 6 Invertebrates and 5 Vertebrates</p> <p>Klaus-Dieter Budras · Patrick H. McCarthy · Wolfgang Fricke · Renate Richter (2007) Anatomy of the Dog, 5th revised Edition</p> <p>Klaus-Dieter Budras · W.O. Sack · Sabine Röck (2011) Anatomy of the Horse, 6th Edition</p> <p>Larry Kimberlin, Alex zur Linden, Lynn Ruoff (2017) Atlas of Clinical Imaging and Anatomy of the Equine Head</p> <p>McGeady, Quinn, Fitzpatrick and Ryan (2006) Veterinary Embryology</p> <p>Michael Akers, Michael Denbow (2013) Anatomy and Physiology of Domestic Animals 2nd Edition LOLA C. HUDSON (2010) Atlas of Feline Anatomy for Veterinarians, 2nd Edition</p> <p>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.</p> <p>Nickel, R; Schummer, A., and Seiferle (1979): The locomotor system of the Domestic Mammals. 2nd Ed. Verlag Pual Parey Berlin and Hamburg.</p> <p>Péter Lőw • Kinga Molnár • György Kriska (2016) Atlas of Animal Anatomy and Histology</p> <p>Poul Maddox-Hyttel et al. (2010); Essentials of domestic animal embryology.</p> <p>Robin Sturtz, DVM (2012) Anatomy and Physiology for Veterinary Technicians and Nurses, A Clinical Approach.</p> <p>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.</p> <p>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</p> <p>Victoria Aspinall, Melanie Cappello (2004); Introduction to Veterinary Anatomy & Physiology</p>
	4- Electronic Materials and Web Sites etc.
	<p>Journals, Websitesetc</p> <p>Journals</p> <p>African veterinary anatomy</p>

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<p>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-andTechnology.html Beni-Suef Veterinary Medical journal http://www.bsuv.bsu.edu.eg/vetmed.aspx#</p> <p>JSCVMA JAVMA International Veterinary Information Services (IVIS). Vet.net.com Vanat.cvm.umn.edu. Pub med. -Wikipedia</p> <p>Websites</p> <p>Anatomical Society of Great Britain and Ireland, http://www.anatsoc.org.uk/ Anatomy museum http://skeletonmuseum.com/ Animals skeletons -www.animalskeletons.net</p>

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<p>Canine planar anatomy http://vanat.cvm.umn.edu/planar/</p> <p>Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html</p> <p>Colorado State university online http://www.online.colostate.edu/courses/VS/VS333.dot</p> <p>Education platform http://ivascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm</p> <p>Functional anatomy of the horse foot</p> <p>Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/</p> <p>Google search www.google.com.</p> <p>http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm</p> <p>Imaging Anatomy Website http://vetmed.illinois.edu/courses/imaging_anatomy/</p> <p>Interactive drawings for veterinary anatomists http://www.images4u.com/</p> <p>Interactive Programs for Canine Anatomy http://www.tabanat.com</p> <p>Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/</p> <p>Online Veterinary Anatomy Museum http://www.onlineveterinaryanatomy.net/</p> <p>Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/</p> <p>Real 3D anatomy http://www.real3danatomy.com/</p> <p>Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/</p> <p>Sciencedirect http://www.sciencedirect.com.</p> <p>Pubmed http://www.Pubmed.</p> <p>Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html</p> <p>Sheep brain dissection guide http://academic.uofs.edu/departments/psych/sheep/</p> <p>The university of adelaide https://www.adelaide.edu.au/course-outlines/104377/1/sem-1/</p> <p>VET Veterinary Educational Tools http://www.cvmb.colostate.edu/vetneuro/</p> <p>Veterinary anatomy courses http://vanat.cvm.umn.edu/vanatCourses/CVM6100.html</p> <p>Veterinary anatomy http://vetmedicine.about.com/od/anatomy/</p> <p>Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/</p>

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	Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/ Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/ Virtual Canine Anatomy http://www.cvmb.colostate.edu/vetneuro/VCA3/vca.html
5- Other Learning Material:	

X. Course Policies:	
1	Class Attendance: MANDATORY TO ATTEND ALL COURSE LECTURES
2	Tardiness: Not allowed at all. Students must be in class or in the practical session 10 minutes prior to the beginning of lectures or practical session
3	Exam Attendance/Punctuality: Attendance is mandatory; absence is accepted with valid excuse
4	Assignments & Projects: All assignments and projects are to be submitted on their due date. Any assignment turned in after the due date will not be accepted without valid and reasonable excuse
5	Cheating: Not tolerated and may lead to EXPELLING the student from the program
6	Plagiarism: Not tolerated AT ALL and may lead to EXPELLING the student from the program
7	Other policies:

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1. All devices must be on silent or at least on vibration during lectures/labs
2. Before any exam (written, oral) we must check student's identity (student's card, ID, passport). Without any of these documents, the student will not be allowed in the exam room.
3. Any of type/ form of cheating is not allowed no matter what.
4. Maintain silence during lectures/exam and disturbance is not allowed. For any questions students should raise their hand and wait for permission to talk.

Course Plan of Veterinary Anatomy (1)

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I. - Information about Faculty Member Responsible for the Course:						
Name of Faculty Member	Dr. Saleh Ahmed Mohammed Ali Alomaisi	Office Hours				
Location & Telephone No.	Sana'a, Thamar Governorate 776017635	SAT	SUN	MON	TUE	WED
E-mail	alomisy78@gmail.com alomisy78@yahoo.com	8am 2pm	8am 2pm	8am 2pm	8am 2pm	8am 2pm

IX. Course Identification and General Information:					
1	Course Title:	Veterinary Anatomy (1)			
2	Course Number & Code:	ANT231			
3	Credit hours:	C.H			Total
		Theoretical	Practical	Training	
		2	2		4
4	Study level/ semester at which this course is offered:	Second Year: First Semester			
5	Pre –requisite (if any):	FR112			
6	Co –requisite (if any):	None			
7	Program (s) in which the course is offered:	Bachelor Veterinary Medicine			
8	Language of teaching the course:	English			
9	System of Study:	Regular / Semesters			

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10	Mode of delivery:	Lectures and Practical
11	Location of teaching the course:	Faculty of Veterinary Medicine

II. Course Description:

This course aimed to provide the students with knowledge, with anatomical terminology and principle information about the general anatomy of domestic animals that will enable them to gain skills for comparative anatomy of the limbs and thorax (bones, joints, muscles, main vessels and nerves), beside it also provide the students with the basic information about the fowl, rabbit and fish anatomy. This course covers embalming of animals including bone preparation for study, osteology, arthrology, myology of different domestic animals. Additionally, the innervation of thoracic, pelvic limbs of the horse. Also a brief description of poultry anatomy is described.

II. Intended learning outcomes (ILOs) of the course:

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After completing this course, students will be able to:

- a1.** Recognize the basic anatomical topographical term, skeleton, types and structures of the bones, joints, muscles, tendons and internal structures (main nerves, vessels and viscera) in domestic animals.
- a2.** Distinguish the basic anatomical structures of fowl, rabbit and fish body.
- b1.** Analyze the diversity of knowledge in the term of gross anatomical characteristics of each organ and/or structure.
- b2.** Differentiate between the normal and abnormal position and deviated movements and malformations of the different joint in both limbs of domestic animals.
- c1-** Illustrate the shape and the normal anatomical features of the parts of the skeleton and bones of domestic animals and position of isolated and assembled bones of different domestic animals.
- c2.** Interpret on clinical findings inside domestic animals, fowl, rabbit and fish bodies based on known normal anatomy background.
- d1.** Communicate effectively with animal's owners, public, colleagues using appropriate communication skills.
- d2.** Demonstrate appropriate professional attitudes and behaviors in different practice situations.

X. Course Content:			
A – Theoretical Aspect:			
Order	Topics List	Week Due	Contact Hours
1	Introduction and anatomical terminology	1-2	4

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2	General osteology (Classification and structural function relationship of all the bones forming the skeleton.)	3-4	4
3	General arthrology (Definition, classification, anatomical structure of the joints of the animal body).	5	2
4	Special arthrology (normal anatomical structure of the joints of the equine thoracic and pelvic limbs) and anatomy of the hoof	6	2
5	Comparative of bones of domestic animals and dissection of the thoracic limb of the horse.	7	2
6	Mid-Term Exam	8	2
7	General myology	9-10	4
8	Classification of muscles and structural function relationship of skeletal muscle and accessory structures of the muscles.	11-12	4
9	Fowl anatomy	13-14	4
10	Rabbit anatomy	15	2
11	Final Exam	16	2
Number of Weeks /and Units Per Semester		16	32

b- Training Aspect:			
Order	Training Tasks	Week Due	Contact hours
1	Introduction and technical anatomical terminology	1-2	4

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2	General osteology (skeletons, types of bones, bone structure)	3	2
3	General arthrology (definition, classification of joints, movement joints)	4	2
4	Bones of the thoracic limb of domestic animals (scapule, humerus, radius, ulna, carpus, metacarpus, digits and hoof).	5	2
5	Dissection of the thoracic limb muscles of lateral aspect, muscles of medial aspect, blood vessels and nerves.	5-7	6
6	Mid-Term Exam	8	2
7	Bones of the pelvic limb of different domestic animals (os-coxae, femur, tibia and fibula, tarsus, metatarsus).	9	2
8	Dissection of the pelvic limb muscles of lateral aspect, muscles of medial aspect, blood vessels and nerves	10-11	4
9	Dissection Fowl (external features, skeleton, digestive system, respiratory system, urinary system, male genital system, female genital system)	12-13	4
10	Dissection Rabbit (external features, skeleton, digestive system, respiratory system, urinary system, male genital system, female genital system)	14	2
11	Describe the muscles and major named vessels and nerves of the equine limbs and thorax in terms of functional groups.	15	2
12	Final Exam	16	2
Number of Weeks /and Units Per Semester		16	32

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V. Teaching strategies of the course:				
<ul style="list-style-type: none"> ▪ Lectures using board, data shows and multimedia aids. ▪ Self-learning by preparing essay and presentations (computer and faculty library) ▪ Brainstorm ▪ Discussion ▪ Cooperative learning ▪ Practical training (Clinical demonstrations, practice of skills, and discussions). <ul style="list-style-type: none"> (a) Field visits (farms and villages) (b) General experimental animal teaching (c) Clinical and small group sessions (d) Outpatient clinic ▪ Tutorial classes (small group teaching) 				
VI. Assessment Methods:				
-Written exam -Practical exam -Oral exam -Quizzes - Report assignments - Discussion				
No.	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Participation quizzes and assignments	1-12	10	10%
2	Mid-semester exam	7	10	10%

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3	Practice exam	13	20	20%
4	Oral exam	13	5	5%
5	Final Exam	16	55	55%
Total			100	100%

VII. Learning Resources:	
1- Required Textbook(s) (maximum two).	
	<p>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.</p> <p>Dominique Penninck, Marc-André d'Anjou (2015) Atlas of Small Animal Ultrasonography, 2nd Edition</p> <p>Dyce ,K. M. , Wolfgang O. Sack , C. J. G. Wensing (2009): Textbook of Veterinary Anatomy, 4e</p> <p>Heide Schatten (2004):Germ Cell Protocols: Volume 1: Sperm and Oocyte Analysis (Methods in Molecular Biology).</p> <p>Horst Erich King and Hans-Georg Liebich (2009): Veterinary Anatomy of Domestic Mammals: Textbook and Colour Atlas</p> <p>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.</p> <p>Poul Hyttel , Fred Sinowatz , Morten Vejlsted , Keith Betteridge (2009): Essentials of Domestic Animal Embryology, 1e.</p> <p>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.</p>

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	<p>Thomas Colville, Joanna M. Bassert (2016) Clinical Anatomy and Physiology for Veterinary Technicians</p> <p>Victoria Aspinall and Melanie Cappello (2009): Introduction to Veterinary Anatomy and Physiology Textbook, 2e</p> <p>William O. Reece (2009): Functional Anatomy and Physiology of Domestic Animals.</p>
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2- Essential References.

	<p>Notes and books:</p> <p>Anatomy and physiology of farm animals. 6th edition (Frandsen, R.D., Wilke, W.I. and Fails, A.D., 2003), published by Lippicott Williams and Wilkins, Awolters Kluwer Company, ISBN: 0-7817-3358-8.</p> <p>Anatomy of the dromedary (Smuts, M.S. and Bezuidenhout, A.J., 1987), published by Clarendon press, Oxford, ISBN: 0-19-857188-7.</p> <p>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.</p> <p>Atlas anatomy of the horse, (G.A. Swielim, 1997), published by Faculty of veterinary medicine- Cairo, ISBN: 977-19-4770-2.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>David G. Smith, Michael P. Schenk (2011) A Dissection Guide and Atlas to the Fetal Pig</p> <p>Dyce, K. M., Wolfgang O. Sack & C. J. G. Wensing (2002); Textbook of Veterinary Anatomy 3rd edition</p>
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Getty, R., 1975/Latest Edition. Sisson and Grossman's. The Anatomy of the Domestic Animals. W.B. Saunders Co. Philadelphia and London.

Geza Zboray- Zsolt Kovacs- György Kriska .

Herzog ,W. (2000); Skeletal Muscle Mechanics: From Mechanisms to Function

[Kenneth Kardong](#) (2001); Vertebrates: Comparative Anatomy, Function, and Evolution

Kinga Molnar- Zsolt Palfia (2010) Atlas of Comparative Sectional Anatomy of 6 Invertebrates and 5 Vertebrates

Klaus-Dieter Budras · Patrick H. McCarthy · Wolfgang Fricke · Renate Richter (2007) Anatomy of the Dog, 5th revised Editio

Klaus-Dieter Budras · W.O. Sack · Sabine Röck (2011) Anatomy of the Horse, 6th Edition

Larry Kimberlin, Alex zur Linden, Lynn Ruoff (2017) Atlas of Clinical Imaging and Anatomy of the Equine Head

McGeady, Quinn, Fitzpatrick and Ryan (2006) Veterinary Embryology

Michael Akers, Michael Denbow (2013) Anatomy and Physiology of Domestic Animals 2nd Edition

LOLA C. HUDSON (2010) Atlas of Feline Anatomy for Veterinarians, 2nd Edition

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.

Nickel, R; Schummer, A., and Seiferle (1979): The locomotor system of the Domestic Mammals. 2nd Ed. Verlag Pual Parey Berlin and Hamburg.

Péter Lőw • Kinga Molnár • György Kriska (2016) Atlas of Animal Anatomy and Histology

Poul Maddox-Hyttel et al. (2010); Essentials of domestic animal embryology.

Robin Sturtz, DVM (2012) Anatomy and Physiology for Veterinary Technicians and Nurses, A Clinical Approach.

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	<p>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.</p> <p>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</p> <p>Victoria Aspinall , Melanie Cappello (2004);Introduction to Veterinary Anatomy & Physiology</p>
<p>3- Electronic Materials and Web Sites etc.</p>	
	<p>Journals, Websitesetc</p> <p>Journals</p> <p>African veterinary anatomy</p> <p>Anatomia, Histologia, Embryologia - Wiley Online Library http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1439-0264</p> <p>The Anatomical Record - Wiley Online Library http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1932-8494</p> <p>Journal of Anatomy- Wiley Online Library http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1469-7580</p> <p>Annals of Anatomy - Journal-Elsevier http://www.journals.elsevier.com/annals-of-anatomy/</p> <p>Journal of Veterinary Anatomy http://www.vetanat.com/</p> <p>Indian Journal of Veterinary Anatomy http://epubs.icar.org.in/ejournal/index.php/IJVA</p> <p>International Journal of Animal Anatomy and Physiology http://internationalscholarsjournals.org/journal/ijaap</p> <p>Journal of Advanced Research in Veterinary Science and Technology http://www.adrpublications.com/Journal-of-Advanced-Research-in-Veterinary-Science-andTechnology.html</p> <p>Beni-Suef Veterinary Medical journal http://www.bsuv.bsu.edu.eg/vetmed.aspx#</p> <p>JSCVMA</p> <p>JAVMA</p>

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<p>International Veterinary Information Services (IVIS). Vet.net.com Vanat.cvm.umn.edu. Pub med. -Wikipedia</p> <p>Websites</p> <p>Anatomical Society of Great Britain and Ireland, http://www.anatsoc.org.uk/ Anatomy museum http://skeletonmuseum.com/ Animals skeletons -www.animalskeletons.net Canine planar anatomy http://vanat.cvm.umn.edu/planar/ Carnivore and developmental anatomy lectures http://vanat.cvm.umn.edu/TFFlect.html Colorado State university online http://www.online.colostate.edu/courses/VS/VS333.dot Education platform http://ivsascove.wix.com/eduplatform#!anatomy-hist-embr/ctsm Functional anatomy of the horse foot Gaits: gait foot-fall patterns http://vanat.cvm.umn.edu/gaits/ Google search www.google.com. http://extension.missouri.edu/xplor/agguides/ansci/g02740.htm Imaging Anatomy Website http://vetmed.illinois.edu/courses/imaging_anatomy/ Interactive drawings for veterinary anatomists http://www.images4u.com/ Interactive Programs for Canine Anatomy http://www.tabanat.com Neuroanatomy correlation lab http://instruction.cvhs.okstate.edu/neurology/ Online Veterinary Anatomy Museum http://www.onlineveterinaryanatomy.net/</p>
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	<p>Primate anatomy and physiology http://pin.primate.wisc.edu/aboutp/anat/</p> <p>Real 3D anatomy http://www.real3danatomy.com/</p> <p>Rooney's guide to the dissection of the horse http://www.vet.cornell.edu/oed/horsedissection/</p> <p>Sciencedirect http://www.sciencedirect.com. Pubmed http://www.Pubmed.</p> <p>Sheep brain atlas https://www.msu.edu/~brains/brains/sheep/index.html</p> <p>Sheep brain dissection guide http://academic.uofs.edu/department/psych/sheep/</p> <p>The university of adelaide https://www.adelaide.edu.au/course-outlines/104377/1/sem-1/</p> <p>VET Veterinary Educational Tools http://www.cvmb.colostate.edu/vetneuro/</p> <p>Veterinary anatomy courses http://vanat.cvm.umn.edu/vanatCourses/CVM6100.html</p> <p>Veterinary anatomy http://vetmedicine.about.com/od/anatomy/</p> <p>Veterinary anatomy museum http://vanat.cvm.umn.edu/museum/</p> <p>Veterinary anatomy: directions and planes http://vanat.cvm.umn.edu/anatDirections/</p> <p>Veterinary neurobiology laboratory preview/review http://vanat.cvm.umn.edu/neurolab/</p> <p>Virtual Canine Anatomy http://www.cvmb.colostate.edu/vetneuro/VCA3/vca.html</p>
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VIII. Course Policies:	
1	<p>Class Attendance:</p> <p>MANDATORY TO ATTEND ALL COURSE LECTURES</p>

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2	<p>Tardy:</p> <p>Not allowed at all. Students must be in class 10 minutes prior to the beginning of lectures</p>
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