



Course Specification Veterinary Anatomy (٢)

I. Course Identification and General Information:						
1	Course Title:	Veterinary Anatomy (2)				
2	Course Number & Code:	ANT232				
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: Second Semester				
5	Pre –requisite (if any):	ANT231				
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:
The course aimed to provide the student with knowledge and skills in the comparative and applied anatomy in the domestic animals

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This course covers the pleura and its reflection, respiratory, urinary, male and female genital in addition to the anatomy of nervous system, lymphatic.

The knowledge about normal shape, form and structure of animals in male and female to differentiate between the diseased cases and application of the anatomical facts with the clinical sciences

Understanding of veterinary anatomy fundamentals, beginning with blood vessels of head and neck, nervous system and special anatomy of the sense organs.

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-	Explain the general and comparative anatomical structures and topography of different body cavities and systems organs with special references to their clinical significance.
A2-	Illustrates basic concepts, principles, and theories related to animal production, animal health and nutrition, behavior management, breeding and care, and animal-related ethical Blogs.	a2-	Identify the comparative features of skulls, respiratory, cardiovascular and digestive system in domestic animals.

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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:		
a1-	Explain the general and comparative anatomical structures and topography of different body cavities and systems organs with special references to their clinical significance.	-Lectures using board, data shows and multimedia aids. - brainstorm. - discussion. -Self-learning by preparing essay and presentations (computer and faculty library)
a2-	Identify the comparative features of skulls, respiratory, cardiovascular and digestive system in domestic animals.	-Written exam -Practical exam -Oral exam - Quizzes - Report assignments - Discussion

(B) Intellectual Skills:

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Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: 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 term of gross anatomical characteristics of each organ and/or 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-	Investigate the normal anatomical structures and topography of domestic animals cardiovascular system, muscles, vessels, nerves and brain.

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 (c) Clinical and small group sessions (d) Outpatient clinic	-Written exam -Practical exam -Oral exam - Quizzes - Report assignment - Discussion
b1-	Analyze the diversity of knowledge in term of gross anatomical characteristics of each organ and/or structure.		
b2-	Investigate the normal anatomical structures and topography of domestic animals cardiovascular system, muscles, vessels, nerves and brain.		

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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 pathological story of a sick animal including information on healthy behavior and the necessary checks.	c1-	Investigate the normal anatomical features of the visceral organs in 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-	Participate in the dissection and preparation of specimens of the different visceral organs of domestic animals and different parts of the equine head, neck, thorax, abdomen and pelvis.

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). (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
c1-	Investigate the normal anatomical features of the visceral organs in different domestic animals.		
c2-	Participate in the dissection and preparation of specimens of the different visceral organs of		

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	domestic animals and different parts of the equine head, neck, thorax, abdomen and pelvis.	- Case study	
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(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 using appropriate communication skills and work in a multidisciplinary team.
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-	Interpret data to solve problems and how to write report on specific scientific related subject to the course and utilize computers and internet skills.

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 (computer and faculty library) - Scientific visits - discussions - Assignments	-Written exam -Practical exam -Oral exam - Report assignment - Discussion - Note performance
d1-	Communicate effectively with animal's owners using appropriate communication skills and work in a multidisciplinary team.		
d2-	Interpret data to solve problems and how to write report on specific scientific related subject to the course and utilize computers and internet skills.		

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IV. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect					
Order	Topic List / Units	CLOs (symbols)	Sub-topic List	Number of weeks	Contact hours
1	Body cavities, bony thorax and bony pelvis	a1- a2- b1- b2-c1- c2- d1- d2	Comparative bones of the pelvic limb.	2	4
2	General and comparative anatomy of Urinary system	a1- a2- b1- b2-c1- c2- d1- d2	Urinary organs Kidneys Ureters Urethra	2	4
3	General and comparative anatomy of female genital system	a1- a2- b1- b2-c1- c2- d1- d2	Two ovaries The uterine (Fallopian) tubes The uterus The vagina The vulva The mammary glands	1	2
4	General and comparative anatomy of male genital system	a1- a2- b1- b2-c1- c2- d1- d2	1-Two testicles 2- The epididymis 3-Ductus deferentes 4-Seminal glands	1	2

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			5-The male urethra 6-The penis (male copulatory organ).		
5	General and comparative anatomy of Respiratory system	a1- a2- b1- b2-c1- c2- d1- d2	Why we Study the Respiratory System The Major Functions of the Respiratory System Parts of the respiratory system (A). Trachea (B). Cartilage (C). Vocal cord (D). Epiglottis (1) Buccal cavity (2) Nasal Cavity (open to pharynx) (3) Inferior maxillary sinus (4) Superior maxillary sinus (5) Frontal sinuses (6) Guttural pouch (7) Pharynx (8) Trachea (9) Bronchus (10) Alveolus (11) Lungs (12) Larynx	2	4
6	General and comparative anatomy of Digestive system	a1- a2- b1- b2-c1- c2- d1- d2	Mouth (oral cavity) Pharynx Esophagus Stomach Small intestine Large intestine Pancreas	1	2

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			Liver		
7	Cardiovascular system (heart and arteries)	a1- a2- b1- b2-c1- c2- d1- d2	<p>Angiology :- It includes:-</p> <p>1- Blood vascular system</p> <p>a- Heart</p> <p>b- Arterial vessels</p> <p>c- Venous vessels</p> <p>2-Lymphatic system</p> <p>a- Lymph-nodes</p> <p>b- Lymph-vessels</p> <p>c- Spleen</p> <p>d- Thymus</p>	1	2
8	nervous system (Functions, neurons, divisions, CNS & PNS) and dissection of the brain sense organs	a1- a2- b1- b2-c1- c2- d1- d2	<p>Divisions of the N.S.</p> <p>It was divided into:-</p> <p>1. Central (C.N.S.); it includes Brain & spinal cord.</p> <p>2. Peripheral (P.N.S.); it includes Peripheral spinal nerves.</p> <p>3. Autonomic (A.N.S.); it is divided into two parts</p> <ul style="list-style-type: none"> • Sympathetic • parasympathetic 	2	4
9	A brief lymphatic system	a1- a2- b1- b2-c1- c2- d1- d2		1	2

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10	A brief fish anatomy	a1- a2- b1- b2-c1- c2- d1- d2	1	2
Number of Weeks /and Units Per Semester			14	28

b- Training Aspect:				
Order	Training Tasks	CILOs (symbols)	Number of weeks	Contact hours
1	Gross anatomy of animals' respiratory system (nostrils, nasal cavity, paranasal sinuses, nasopharynx, larynx, trachea, lungs,	a1- a2- b1- b2-c1- c2- d1- d2	3	6
2	Dissection of the equine thorax (thoracic cage, muscles, vessels and nerves of the thoracic wall, thoracic cavity	a1, a3, b1, b2, c2, c3, c4, c, d1	2	4
3	Gross anatomy of equine cardiovascular system (head, neck, heart, coronary arteries, thoracic aorta abdominal aorta)	a1- a2- b1- b2-c1- c2- d1- d2	2	4
4	dissection of the head & neck	a1- a2- b1- b2-c1- c2- d1- d2	4	8
5	Dissection of abdomen and pelvis Dissection of abdomen and pelvis	a1- a2- b1- b2-c1- c2- d1- d2	3	6
Number of Weeks /and Units Per Semester			14	28

V. Schedule of Assessment Tasks for Students During the Semester:					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning

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					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%	

VI. Students' Support:	
Office Hours/week	Other Procedures (if any)
Saturday-Wednesday from 8:00 a.m.-2 p.m.	Student can contact me via email

VII. Learning Resource (MLA style or APA style)S:	
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>

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	<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 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> <p>William O. Reece (2009): Functional Anatomy and Physiology of Domestic Animals.</p>
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>

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	<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> <p>William O. Reece (2009): Functional Anatomy and Physiology of Domestic Animals.</p>
<p>Essential References</p>	
	<p>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.</p> <p>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.</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 ed. (Budras, K.D., Sack, W.O. and Röck, S., 1994), Mosby work. Hanover Germany, ISBN: 07234-19213.</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>

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Atlas anatomy of the horse, (G.A. Swielim, 1997), published by Faculty of veterinary medicine- Cairo, ISBN: 977-19-4770-2.

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.

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.

David G. Smith, Michael P. Schenk (2011) A Dissection Guide and Atlas to the Fetal Pig

Dyce, [K. M.](#) , [Wolfgang O. Sack](#) & [C. J. G. Wensing](#) (2002); Textbook of Veterinary Anatomy 3rd edition

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- Gy6rgy 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), W.B. Saunders Company, Philadelphia, London, Toronto, Mexico city, Rio de -Janeiro, Sydney and Tokyo, ISBN:0-7216-3438-9

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	<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>Notes and books:</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 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.</p> <p>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.</p> <p>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.</p> <p>Victoria Aspinall, Melanie Cappello (2004); Introduction to Veterinary Anatomy & Physiology</p>
	<p>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</p>

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<p>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 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/</p>
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	<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/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>
	2- Other Learning Material:

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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: <ol style="list-style-type: none"> 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.

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Course Plan of Veterinary Anatomy (١)

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	THU
E-mail	alomisy78@gmail.com alomisy78@yahoo.com	8am 2pm	8am 2pm	8am 2pm	8am 2pm	8am 2pm	

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VIII. Course Identification and General Information:					
1	Course Title:	Veterinary Anatomy (2)			
2	Course Number & Code:	ANT232			
3	Credit hours:	C.H			Total
		Theoretical	Practical	Training	
		2	2		
4	Study level/ semester at which this course is offered:	Second Year: Second Semester			
5	Pre –requisite (if any):	ANT231			
6	Co –requisite (if any):				
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			
10	Mode of delivery:	Lectures and Practical			
11	Location of teaching the course:	Faculty of Veterinary Medicine Building			

II. Course Description:
The course aimed to provide the student with knowledge and skills in the comparative and applied anatomy in the domestic animals

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This course covers the pleura and its reflection, respiratory, urinary, male and female genital in addition to the anatomy of nervous system, lymphatic.

The knowledge about normal shape, form and structure of animals in male and female to differentiate between the diseased cases and application of the anatomical facts with the clinical sciences

Understanding of veterinary anatomy fundamentals, beginning with blood vessels of head and neck, nervous system and special anatomy of the sense organs.

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

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After completing this course, students will be able to:

- a1.** Explain the general and comparative anatomical structures and topography of different body cavities and systems organs with special references to their clinical significance.
- a2.** Identify the comparative features of skulls, respiratory, cardiovascular and digestive system in domestic animals.
 - b1.** Analyze the diversity of knowledge in term of gross anatomical characteristics of each organ and/or structure.
 - b2.** Investigate the normal anatomical structures and topography of domestic animals cardiovascular system, muscles, vessels, nerves and brain.
- c1.** Investigate the normal anatomical features of the visceral organs in different domestic animals.
- c2.** Participate in the dissection and preparation of specimens of the different visceral organs of domestic animals and different parts of the equine head, neck, thorax, abdomen and pelvis.
 - d1.** Communicate effectively with animal's owners using appropriate communication skills and work in a multidisciplinary team.
 - d2.** Interpret and transcribe data to solve problems and how to write report on specific scientific related subject to the course and utilize computers and internet skills.

X. Course Content:

A – Theoretical Aspect:

Order	Topics List	Week Due	Contact Hours
1	Body cavities, bony thorax and bony pelvis	1-2	4
2	General and comparative anatomy of Urinary system	3-4	4

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3	General and comparative anatomy of female genital system	5	2
4	General and comparative anatomy of male genital system	6	2
5	General and comparative anatomy of Respiratory system	7	2
6	Mid-Term Exam	8	2
7	General and comparative anatomy of Digestive system	9-10	4
8	Cardiovascular system (heart and arteries)	11	2
9	nervous system (Functions, neurons, divisions, CNS & PNS) and dissection of the brain sense organs	12-13	4
10	A brief lymphatic system	14	2
11	A brief fish anatomy	15	2
12	Final Exam	16	2
Number of Weeks /and Units Per Semester		16	32

b- Training Aspect:

Order	Training Tasks	Week Due	Contact hours
1	Gross anatomy of animals' respiratory system (nostrils, nasal cavity, paranasal sinuses, nasopharynx, larynx, trachea, lungs,	1-3	6
2	Dissection of the equine thorax (thoracic cage, muscles, vessels and nerves of the thoracic wall, thoracic cavity	4-5	4

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3	Gross anatomy of equine cardiovascular system (head, neck, heart, coronary arteries, thoracic aorta abdominal aorta)	6-7	4
4	Mid-Term Exam	8	2
5	Dissection of the head & neck	9,10,11,12	8
6	Dissection of abdomen and pelvis Dissection of abdomen and pelvis	13,14,15	6
7	Final Exam	16	2
Number of Weeks /and Units Per Semester		16	32

<p>II. Teaching strategies of the course:</p> <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>II. Assessment Methods:</p> <ul style="list-style-type: none"> -Written exam -Practical exam

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

IX. Learning Resource (MLA style or APA style)S:	
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>

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<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> <p>William O. Reece (2009): Functional Anatomy and Physiology of Domestic Animals.</p>
<p>Recommended Readings and Reference Materials</p>
<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</p>

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<p>Vejlsted, 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> <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>
<p>Essential References</p>
<p>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.</p> <p>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.</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 ed. (Budras, K.D., Sack, W.O. and Röck, S., 1994), Mosby work. Hanover Germany, ISBN: 07234-19213.</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 ed. (Budras, K.D., Habel, R.E., Wiinsche, A. and Buda, S. 2003), Hanover, Germany, ISBN: 3-89993-000-2.</p>

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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.

David G. Smith, Michael P. Schenk (2011) A Dissection Guide and Atlas to the Fetal Pig

Dyce, [K. M.](#), [Wolfgang O. Sack](#) & [C. J. G. Wensing](#) (2002); Textbook of Veterinary Anatomy 3rd edition

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 Edition

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), 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.

Notes and books:

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

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

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	<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 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.</p> <p>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.</p> <p>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.</p> <p>Victoria Aspinall, Melanie Cappello (2004); Introduction to Veterinary Anatomy & Physiology</p>
Electronic Materials and Web Sites etc.	
	<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-</p>

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<p>andTechnology.html Beni-Suef Veterinary Medical journal http://www.bsuv.bsu.edu.eg/vetmed.aspx# JSCVMA JAVMA International Veterinary Information Services (IVIS). Vet.net.com Vanat.cvm.umn.edu. Pub med. -Wikipedia 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 anatomyhttp://vanat.cvm.umn.edu/planar/ Carnivore and developmental anatomy lectureshttp://vanat.cvm.umn.edu/TFFlect.html Colorado State university online http://www.online.colostate.edu/courses/VS/VS333.dot Education platformhttp://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 anatomistshttp://www.images4u.com/ Interactive Programs for Canine Anatomyhttp://www.tabanat.com</p>

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	<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. 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>
2- Other Learning Material:	

XIII. Course Policies:	
1	<p>Class Attendance:</p> <p>MANDATORY TO ATTEND ALL COURSE LECTURES</p>

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 Dr. Abdulrasheed Alkhamisi

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Dean of Development
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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>
3	<p>Exam Attendance/Punctuality:</p> <p>Attendance is mandatory; absence is accepted with valid excuse</p>
4	<p>Assignments & Projects:</p> <p>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.</p>
5	<p>Cheating:</p> <p>Not tolerated and may lead to EXPELLING the student from the program</p>
6	<p>Plagiarism:</p> <p>Not tolerated AT ALL and may lead to EXPELLING the student from the program</p>
7	<p>Other policies:</p> <ol style="list-style-type: none"> 1. All devices must be on silent or at least on vibration during lectures/labs. 2. Before any exam (written, practical, oral) student's identity will be checked (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 and disturbance is not allowed.

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