**BIOMED 3219**

**Elements of Comparative Anatomy**

**COURSE PROFILE**

Course Description This course is designed to give students an introduction to and appreciation for comparative anatomy of various species encountered in animal science, veterinary technology and veterinary medicine. Detailed and labeled photos and videos of dissected specimens are used to aid instruction.

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Major Objectives After completion of the course, a student will be able to:

1. Define directional terms as they apply to the anatomy of animals, terms related to movement of the body and terms related to regions of the body (e.g. brachium, crus)
2. Identify individual bones, features of those bones and the muscles attachments to those features.
3. Classify muscle groups of the limbs (intrinsic, extrinsic, extensors and flexors) and the actions and innervation of those muscles.
4. List the functions and major features of the various anatomical systems (e.g. cardiovascular, respiratory, digestive, urogenital).
5. Be able to identify organs and selected muscles of the domestic mammals (dogs, cats, horses, oxen, small ruminants, swine) and birds (primarily the chicken).

Prerequisites 5 hours of biologic science or zoology, or equivalent, or instructor’s consent or an AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association-accredited program.

Delivery This course is delivered completely online. Students are not required to attend class at regular times; however, it is important that they follow the schedule guidelines and meet due dates and deadlines for readings and exams. Communication will be through the announcements and emails.

 Course delivery strategies may include: reading from required textbook(s), reading resources linked to the internet, and e-mails.

Organization Course materials are located under the left-hand tab in the course Blackboard site under “Units”. “Sessions” are found under “Units” and “Modules” under “Sessions”. Further directions are provided in Blackboard.

Required Materials Frandson et al. 2009. Anatomy and physiology of farm animals 7th edition. Wiley-Blackwell Publishing, Ames IA. ISBN:978-0-0138-1394-3

**EVALUATION OF STUDENT PERFORMANCE**

Satisfactory

Performance There will be 380 possible points with a score greater than 228 points required for a passing grade. Four proctored exams will provide a total of 300 points. Eight quizzes will provide the remaining 80 points. Students with less than 61% after the first examination will receive a warning. Grades will be available in Blackboard. To insure confidentiality, they will not be sent by e-mail.

Exams Exams are available only under the supervision of a proctor. The following link, <http://mudirect.missouri.edu/studentresources/proctors.aspx>, is used to direct students to get their proctor forms. Contact Mizzou Online to locate a local proctor for your exams. Mizzou Online will contact you concerning proctors and the approval process. The proctor **must** be approved by Mizzou Online **10 days in advance** of an examination. Reminders about proctors will be sent by Mizzou Online and will be posted on the announcements page in the Blackboard site for the course. Seventy five minutes will be allowed for exams.

 You may take an exam or quiz only once. You must complete the exam once you start it. You may NOT come back to the exam later. If you are disconnected during an exam, contact the instructor immediately and then send an e-mail to blackboard@missouri.edu with your name, username, course name, title of the quiz or exam, and a description of the problem. To ensure your answers are logged, click **Save** after each question. Click **Submit** after you have reviewed your answers to have the quiz or exam graded.

 Examination questions will be true/false, multiple choice, fill in the blank, matching, identification of structures on pictures or any combination of the above. Source of questions will be from each module, reading assignment and the anatomy figures.

 The test dates will not be changed. It is up to the student to make appropriate arrangements to take the exam during the period in which it is available.

Grading The grading scale will be A to F, including some pluses and minuses but no A+, D+, or D-. Grades will be based on the following scale:

94-100% = A

90-93% = A-

87-89% = B+

83-86% = B

80-82% = B-

77-79% = C+

73-76% = C

70-71% = C-

60-69% = D

59% or less = F

Note: A Certificate in Biomedical Technology requires at least a **C** grade in this course, plus a total of 15 cr hr BIOMED courses with an average GPA in all BIOMED courses of 3.0.

**COURSE SCHEDULE**

1. Unit 1: Cells, tissues and the integument **Reading assignments**

* 1. Session 1: Introductory and the cell
		1. Module 1: Introduction
		2. Module 2: Terminology & directional terms 5- 7
		3. Module 3: The cell 28-30, 39-43
	2. Session 2: Tissues and the integument
		1. Module 4: Tissues and fascia 7-16
		2. Module 5: Integument: skin, hair 223-228
		3. Module 6: Integument: hoof, horn 228-235, 239-242
1. Unit 2: Osteology and arthrology
	1. Session 3: Osteology
		1. Module 7: Classifications of bones, bony features 59-64, 80-82
		2. Module 8: Axial skeleton 68-71
		3. Module 9: The skull 64-68
	2. Session 4: Osteology 2, syndesmology (joints)
		1. Module 10: Thoracic limb 71-74
		2. Module 11: Pelvic limb 74-76
		3. Module 12: Anatomy of joints 87-100
2. Unit 3: Muscle
	1. Session 5: Muscles 1
		1. Module 13: Muscles 105-113
		2. Module 14: Muscles of the head 126-127
		3. Module 15: Muscles of the neck

 and trunk 127-130

* 1. Session 6: Muscles 2 and the equine stay apparatus
		1. Module 16:Muscles of the thoracic limb 113-120
		2. Module 17: Muscles of the pelvic limb 120-125
		3. Module 18: The stay apparatus 250-256
1. Unit 4: Cardiovascular and respiratory system
	1. Session 7: Heart
		1. Module 19: Anatomy of the heart 283-288, 303-308
		2. Module 20: Anatomy of arteries & veins 289, 310
		3. Module 21: Blood 257-265
	2. Session 8: Lymphatics and respiration
		1. Module 22: Pulmonary, systemic, cardiac

 & fetal circulation 289-299

* + 1. Module 23: Lymphatics 269, 278-282, 289
		2. Module 24: Respiratory system 317-328
1. Unit 5: Digestive system
	1. Session 9: Digestive system 1
		1. Module 25: Introduction to the

 digestive system 335-337, 341-345

* + 1. Module 26: Teeth 337- 341
		2. Module 27: Pharynx, esophagus, stomach 343-350
	1. Session 10: Digestive system 2; urinary system
		1. Module 28: Intestines 350-355
		2. Module 29: Liver, Pancreas, Salivary glands 356-359
		3. Module 30: Kidneys, ureters, bladder & urethra 383-392
1. Unit 6: Reproduction and endocrinology
	1. Session 11: Reproductive systems, endocrinology
		1. Module 31: Male reproductive system 401-412
		2. Module 32: Female reproductive system 421-428
		3. Module 33: Placentation 442-444
	2. Session 12: Mammary system, reproductive endocrine organs, endocrine 1
		1. Module 34: Mammary glands 449-456
		2. Module 35: Endocrine 1 207, 212-215
		3. Module 36: Reproductive endocrine 413-16, 418-19, 429-

 33, 444-445

1. Unit 7: Endocrine and special senses
	1. Session 13: Endocrine 2, the senses, nervous system
		1. Module 37: Endocrine 2 220-222
		2. Module 38: The ear 171-178
		3. Module 39: The eye 199-205
	2. Session 14: Senses
		1. Module 40: Olfaction and taste 190-192
		2. Module 41: Nervous system: overview
		3. Module 42: Brain and spinal cord 156-163

Unit 8: The nervous system

* 1. Session 15: The nervous system continued, birds
		1. Module 43: The peripheral nervous system 164-168
		2. Module 44: The autonomic nervous system 169-171
		3. Module 45: Birds 1 463-468
	2. Session 16: Birds, lab animals, reptile

Module 46: Birds 2 468-482

Module 47: Laboratory animals/pocket pets no reading assignment

Module 48: Reptiles no reading assignment