BMS305 SYLLABUS
Domestic Animal Gross Anatomy
Spring 2017

INSTRUCTORS/CONTACT INFORMATION

Christanne Magee, DVM, PhD, DipACT
Course Director, Assistant Professor
Office: 246 Physiology, 491-7371
Office hours: By appointment
Christianne.Magee@colostate.edu

Kenny Ivie, BS, MS
Lecturer, Instructor
Office: W218 Anatomy, 491-6470
Office hours: By appointment
Kenneth.Ivie@colostate.edu

James E Madl, DVM, PhD
Lecturer, Professor
Office: 233 Physiology
Office hours: By appointment
James.Madl@colostate.edu

Anna Andrews, BA, MS
Graduate Teaching Assistant
Office: 201 Physiology
Office Hours: Mondays 9-11 a.m.
aandrews.bioequine@gmail.com

Jeremy J Delcambre, DVM, MS
Laboratory Coordinator, Assistant Professor
Office: W3 Anatomy/Zoology, 491-6549
Office hours: By appointment
Jeremy.Delcambre@colostate.edu

Andrew Garrett, BS
Graduate Teaching Assistant
Office: 201 Physiology
Office hours: Wednesdays 9-11 a.m.
agarret@rams.colostate.edu

COURSE INFORMATION

Prerequisites
Life102 or BZ 110

Course Schedule

Lecture: Monday, Wednesday, Friday 1:00-1:50 pm – 104 Yates

Laboratory: W117 Anatomy/Zoology Building
Section 1: Thursday Lab 1:00-2:50 pm
Section 2: Thursday Lab 3:00-4:50 pm

Open Lab Hours: Monday, Tuesday 12-2 pm; Thursday, Friday 8 am-12 pm

Course Description and Objectives

BMS305 presents the gross anatomy of the Carnivore (dog and cat), Ruminants (ox, goat), and the Horse from a regional perspective, utilizing clinical applications as a basis for anatomical understanding. Other disciplines such as physiology, embryology, and histology will also be included when they assist in anatomical understanding.
The lecture portion of the course will include:

1. The skeletal, muscular, vascular, and nervous system components of the pelvic limb with an introduction to the nervous system.
2. The skeletal, muscular, vascular, and nervous system components of the thoracic limb.
3. The skeletal, muscular components of the neck and back; the vascular, nervous and organ system components of the thorax, abdomen and pelvis, including gastrointestinal, urinary, and reproductive organs.
4. An overview of cranial nerves, the central nervous system, skull, nasal and oral cavity, and neck.

The laboratory portion of the course includes:

1. The study of prosected animal cadavers
2. Computer facilitated study using animal anatomy software. Emphasis on identifying relationships and locations of anatomical structures as well as practicing anatomical vocabulary.

The lecture and laboratory are intimately correlated and inseparable. Exams will integrate material from both lecture and laboratory sessions.

For each hour (1 hr) of lecture or laboratory time, a student is expected to spend 2 additional hours preparing for lecture/laboratory and/or reviewing the material. Please anticipate that you will need (on average ~4 hrs/week) dedicated laboratory study outside of the Thursday laboratory session. The laboratory, W117 A/Z, is shared by numerous courses but is available and staffed with Teaching Assistants for BMS 305 Open Lab on Monday and Tuesday from 12-2pm, and Thursday and Fridays from 8 am – 12 pm to help you with your study. Historically, if you cannot attend any of these open lab sessions, your performance in the course may be jeopardized.

TEXTBOOKS and LEARNING RESOURCES

REQUIRED:
BMS305/531 Notes Pack – available only at CSU Bookstore
Canvas https://colostate.instructure.com/
IClicker

OPTIONAL*:
Virtual Anatomy USB with Canine, Equine, Feline, Bovine
Dyce, Sack and Wensing. Textbook of Veterinary Anatomy
Frandson, R.D., Anatomy and Physiology of Farm Animals
Evans, H.E., Guide to the Dissection of the Dog
Spurgeon, T.L., Spurgeon’s Color Atlas of Large Animal Anatomy

*We will discuss the merits of the optional texts on the first day of lecture. You only need the required texts. If you use them correctly, you should not need any other resources.
Course Objectives:

Students will be able to describe and identify, as well as understand relationships between bones, muscles, vessels and nerves of the thoracic and pelvic limbs, the head and neck and the thorax, abdomen and pelvis. Students will apply this knowledge to clinical cases and multi-species comparisons of anatomical features to categorize the importance of features within an animal or species.

The course has been designed to fit the needs of students in animal science, equine science and general biology, and for those preparing for careers in domestic animal care, pre-veterinary medicine, Bio-Education (Teachers!), as well as students simply interested in the physical construction of domestic animals.

EXAMINATION AND GRADING POLICIES

Laboratory Quiz: There will be 7 laboratory quizzes. These will be worth 5 points each and there will be 2 in the first 3 units, and only 1 in the last unit. The course instructor will provide a reduced version of the laboratory objectives (20-30 terms/structures) from which the 5 quiz questions will be randomly selected. The quiz will be held during the regular laboratory session, with students rotating between the laboratory and quiz room and different questions asked during each quiz session. The lowest quiz score will be dropped (6 quizzes x 5 pts = 30 pts total). There are no make-up quizzes.

Lecture Exams: There will be four written unit exams and an optional final comprehensive exam all administered via RamCT. Each unit exam will emphasize the material in that unit. Each of the four exams will consist of 50 points. The optional final comprehensive exam, should you decide to take it, can replace any one of the four written unit exams. Questions on these written exams will be taken from lectures, laboratory presentations, and handouts, and the required course texts. There will be no make up exams. If for any reason you cannot take the lecture exams at the scheduled time, you must contact Dr. Magee, IN ADVANCE OF THAT EXAM.

Lab Practicals: There will be four lab practicals, each emphasizing the material in that unit. Each lab practical will consist of 50 points. You cannot drop any of the lab exam scores. Questions will be largely identification of tagged structures on the specimens and questions pertaining to them that will require integration of lecture material. There will be no make up exams. If for any reason you cannot take the laboratory practical exam at the scheduled time, you must contact Dr. Magee, IN ADVANCE OF THAT EXAM.

Class Participation: There will be at least 11 class participation questions throughout the semester, each worth 1 point for the correct answer, for a total of 10 points (allowing you to drop 1 questions). These questions are open book and are designed to prepare you for lecture exams and test your knowledge of the material. The iClickers will be used for electronic submission of your answer. If you have not previously registered your iClicker, go to clicker.colostate.edu. If you have
registered your iClicker before, you do not need to register it a second time.

The final grade will be computed from the grades of six quizzes (30 points) four lecture exams (200 points), four lab practical exams (200 points), and class questions (10 points) for a total of 440 points. You can determine your overall grade at any time during the semester by dividing the actual points on your exams by the total points possible to that date. There is no partial credit (0.5 points) and exams are not “curved.” Letter grades for the course will follow this format: NOTE: The +/- grading system is NOT used in BMS305

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% - 100% = 396 points and above</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89% = 352 - 395</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79% = 308 - 351</td>
</tr>
<tr>
<td>D</td>
<td>60% - 69% = 264 - 307</td>
</tr>
<tr>
<td>F</td>
<td>Below 60% = 264 and below</td>
</tr>
</tbody>
</table>

- REQUESTS FOR RE-GRADING OF ANY EXAM (LECTURE OR LAB) MUST BE MADE WITHIN 48 HOURS OF THE RETURN OF THE EXAMS
- GRADES ARE AN EVALUATION OF YOUR RESULTS, NOT OF YOUR EFFORTS
- GRADES ARE NOT NEGOTIABLE

RESOURCES FOR DISABLED STUDENTS:

The Department of Biomedical Science and the instructors of this course are dedicated to providing an environment conducive to learning for all students. Those students with learning differences or physical disabilities for which testing accommodation is needed must request those accommodations as early in the semester as possible and no later than one week prior to the first QUIZ. For additional information, visit www.rds.colostate.edu. RDS is located at 100 General Services Building and their phone # is (970) 491-6385 (V/TDD). The alternative laboratory practical exams will be held from 11:00 am-1:00 pm in W117 on the scheduled exam days. The lecture exams will be taken at RDS at 1 pm OR 3pm after the laboratory exam has concluded. The RDS quizzes will be held at 4 pm on quiz days during the second laboratory section (3-5 pm) and it is recommended that you attend the second section if you are an RDS student.

Student’s Rights & Academic Honesty:

It will be helpful to you, if you are familiar with your rights and responsibilities as a student, found in the Colorado State University General Catalog. Further, understanding the process regarding your educational records and the rights pertaining to those records are most valuable. Finally, please be reminded of the University policy on Academic Integrity found in the Colorado State University General Catalog. Please familiarize yourself with this policy, which applies to this class and all others at Colorado State. You are neither required to sign the CSU Honor Pledge before participating in the course, nor are you asked to write anything on your exams indicating
your adherence to the Pledge. Nonetheless, by participating in this course, you inherently demonstrate that you understand that because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, that you will adhere to not giving, receive or using an unauthorized assistance during quizzes and/or examinations as part of this course.

**Minimum Expectations in Class:**

This class is relatively large as enrollments go, therefore it is especially important that an atmosphere which facilitates the maximum opportunity for learning is present at all times. Echo360 will be used to capture lectures and these will be provided on Canvas within 48 hours of the lecture. In addition to the points from class participation questions, there is a positive relationship between class attendance and performance in the course. We do expect all students present on a given day to be attentive, polite, and not a source of distraction to the instructor or any other student. Distracting behaviors such as private visitations (talking to your neighbor), reading newspapers, coming to class late and leaving early, or any other potentially disrupting behaviors are out of place. Please also leave your cell phones off or in your bags during class. Cell phones that are left on (and ring!) during an exam will be confiscated by Dr. Magee and returned at the end of the day. Many students enjoy taking notes on personal computing devices (laptops, iPads, tablets, etc.). Please remember that if you are viewing material other than that which pertains to the class, so can the students and instructors sitting behind you. If the temptation arises, you are encouraged to absent yourself from class on that day(s). **Questions and comments, of course, are always encouraged despite class size.** Every effort will be made to make the classroom experience both profitable and enjoyable for all. If you feel you cannot live up to these minimum expectations, please exit the course now while you can still add another course of your choice. If you have questions, refer to the CSU General Catalog - "Classroom Behavior."

**Schedule Changes:**

Registration closes - last day to add/drop*: Wednesday, February 1, 2017
  *Last day to drop course without transcript record

Last day to take a "W": Monday, March 20, 2017

"Incomplete" Grade:

CSU General Catalog, “... a temporary grade of "I" may be given to a student who demonstrates the he/she could not complete the requirements of a course due to circumstances beyond the student’s control and not reasonably foreseeable. A student must be passing a course at the time that an incomplete is requested…”

**TRANSLATION:** Please take responsibility for your education. This is not a grade designation to deal with an "F".
UNIT 1 – PELVIC LIMB

Week 1:
W 1/18 Lecture 1: Introduction / general body plan - Magee
R 1/19 Lab 1: Bones of the pelvic limb
Laboratory Orientation and overview of bony landmarks - Delcambre
Bring Lecture Notes and Lab Guide for this first Laboratory
F 1/20 Lecture 2: Introduction to bones, muscles, vessels & nerves - Madl
Composition, strength, function

Week 2:
M 1/23 Lecture 3: Articulations - Magee
iClicker questions will begin this week.
W 1/25 Lecture 4: Overview: Muscles of the pelvic limb - Delcambre
Regional anatomy of attachments, innervation, blood supply
R 1/26 Lab 2 - Muscles of the pelvic limb
Quiz 1: Lab 1
F 1/27 Lecture 5: Nervous system overview - Delcambre

Week 3:
M 1/30 Lecture 6: Vessels & nerves of the pelvic limb - Delcambre
W 2/1 Lecture 7: Articulation in the Pelvic Limb - Magee
(Note – Registration closes, last day to add/drop the course)
R 2/2 Lab 3 - Vessels and nerves of the pelvic limb
Quiz 2: Lab 2
F 2/3 Lecture 8: Stabilization of the Equine Pelvic Limb - Magee

Week 4:
M 2/6 Lecture 9: Comparative anatomy - Magee
W 2/8 Lecture 10: Review - Applied anatomy - Magee
R 2/9 Lab: LECTURE / LAB EXAM - UNIT 1 – PELVIC LIMB
## UNIT 2 – THORACIC LIMB

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Lecture/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>2/10</td>
<td>Lecture 11: Thoracic limb bony landmarks &amp; articulations - Magee</td>
</tr>
<tr>
<td><strong>Week 5:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2/13</td>
<td>Lecture 12: Extrinsic muscles of thoracic limb - Delcambre</td>
</tr>
<tr>
<td>W</td>
<td>2/15</td>
<td>Lecture 13: Intrinsic muscles of the thoracic limb - Delcambre</td>
</tr>
<tr>
<td>R</td>
<td>2/16</td>
<td><strong>Lab 4:</strong> Thoracic limb bones and musculature: bony landmarks and intrinsic vs. extrinsic muscles</td>
</tr>
<tr>
<td>F</td>
<td>2/17</td>
<td>Lecture 14: Vessels &amp; nerves of the thoracic limb - Delcambre</td>
</tr>
<tr>
<td><strong>Week 6:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2/20</td>
<td>Lecture 15: Features of the neck - Magee</td>
</tr>
<tr>
<td>W</td>
<td>2/22</td>
<td>Lecture 16: Stabilization of the equine thoracic limb – Magee</td>
</tr>
<tr>
<td>R</td>
<td>2/23</td>
<td><strong>Lab 5:</strong> Vessels and nerves of the thoracic limb, Stabilization of the Equine Thoracic Limb Quiz 3: Lab 4</td>
</tr>
<tr>
<td>F</td>
<td>2/24</td>
<td>Lecture 17: Vertebral column &amp; muscles - Magee</td>
</tr>
<tr>
<td><strong>Week 7:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2/27</td>
<td>Lecture 18: Spinal cord - Ivie</td>
</tr>
<tr>
<td>W</td>
<td>3/1</td>
<td>Lecture 19: Foot/Hoof – Magee</td>
</tr>
<tr>
<td>R</td>
<td>3/2</td>
<td><strong>Lab 6:</strong> Vertebral column bony features and musculature, Spinal Cord, features of the paw and hoof Quiz 4: Lab 5</td>
</tr>
<tr>
<td>F</td>
<td>3/3</td>
<td>Lecture 20: Gait - Magee</td>
</tr>
<tr>
<td><strong>Week 8:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>3/6</td>
<td>Lecture 21: Comparative anatomy - Magee</td>
</tr>
<tr>
<td>R</td>
<td>3/9</td>
<td><strong>Lab:</strong> LECTURE / LAB EXAM – UNIT 2 – THORACIC LIMB</td>
</tr>
</tbody>
</table>
### UNIT 3 – Trunk: Thorax, Abdomen, Pelvis (TAP)

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture/Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 3/10</td>
<td>Lecture 23: Thorax / Lungs - Magee</td>
</tr>
<tr>
<td><strong>SPRING BREAK 3/11-3/19</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Week 9:</strong></td>
<td></td>
</tr>
<tr>
<td>M 3/20</td>
<td>Lecture 24: Heart &amp; great vessels of the heart – comparative anatomy - Ivie</td>
</tr>
<tr>
<td></td>
<td>(Note – last day to Withdraw from course is March 20)</td>
</tr>
<tr>
<td>W 3/22</td>
<td>Lecture 25: Autonomic nervous system – Delcambre</td>
</tr>
<tr>
<td>F 3/24</td>
<td>Lecture 26: Abdominal wall - blood supply and inguinal canal - Magee</td>
</tr>
<tr>
<td><strong>Week 10:</strong></td>
<td></td>
</tr>
<tr>
<td>M 3/27</td>
<td>Lecture 27: Abdominal viscera - Magee</td>
</tr>
<tr>
<td>W 3/29</td>
<td>Lecture 28: Blood supply and return of abdominal viscera - Delcambre</td>
</tr>
<tr>
<td>R 3/30</td>
<td><strong>Lab 8: Abdominal wall, cavity, and viscera, including vascular structures and ANS structures in the abdomen. Quiz 5: Lab 7</strong></td>
</tr>
<tr>
<td>F 3/31</td>
<td>Lecture 29: Equine large intestine - Magee</td>
</tr>
<tr>
<td><strong>Week 11:</strong></td>
<td></td>
</tr>
<tr>
<td>M 4/3</td>
<td>Lecture 30: Ruminant stomach - Garrett</td>
</tr>
<tr>
<td>W 4/5</td>
<td>Lecture 31: Male reproductive tract - Magee</td>
</tr>
<tr>
<td>R 4/6</td>
<td><strong>Lab 9: Comparative G.I. Overview of male/female reproductive organs. Pelvic cavity and viscera Quiz 6: Lab 7</strong></td>
</tr>
<tr>
<td>F 4/7</td>
<td>Lecture 32: Female reproductive tract – Magee</td>
</tr>
<tr>
<td><strong>Week 12:</strong></td>
<td></td>
</tr>
<tr>
<td>M 4/10</td>
<td>Lecture 33: Vessels &amp; nerves of the pelvic cavity - Magee</td>
</tr>
<tr>
<td>W 4/12</td>
<td>Lecture 34: Clinical Cases and Review - Magee</td>
</tr>
<tr>
<td>R 4/13</td>
<td><strong>Lab: LECTURE/LAB EXAM- UNIT 3 TAP</strong></td>
</tr>
</tbody>
</table>
UNIT 4 - HEAD

F  4/14  Lecture 35: Skull & superficial features of the head - Garrett

Week 13:
M  4/17  Lecture 36: Cranial nerves & muscles - Ivie
W  4/19  Lecture 37: Cranial nerves & muscles - Andrews
R  4/20  Lab 10: Bones of skull & structures of the head
F  4/21  Lecture 38: Larynx, Pharynx - Magee

Week 14:
M  4/24  Lecture 39: Brain - Madl
W  4/26  Lecture 40: Vessels of head & Brain - Ivie
R  4/27  Lab 11: Brain, Neck, Cavities, Pharynx, Larynx
     Quiz 7: Lab 10
F  4/28  Lecture 41: Oral cavity, nasal cavities, dentition - Magee

Week 15:
M  5/1   Lecture 42: Eye, Ear - Magee
W  5/3   Lecture 43: Clinical Cases and Review - Magee
R  5/4   Lab: LECTURE/LAB EXAM- UNIT 4 Head
F  5/5   Optional Lecture 44: The Neurologic Exam of the Dog

BMS305 OPTIONAL COMPREHENSIVE FINAL EXAM (Lecture Content Only):
5/9  4:10-6:10 pm
Meet in W117 at 3:50 pm. Students will then be assigned to a computer laboratory for the exam, which will begin at 4:10 pm. This is a computer exam only.
BMS305 LABORATORY

You will need:

- Your laboratory guide, lecture notes, and the Virtual Canine Anatomy program.
- A blunt probe (called a “light mall probe” in the bookstore)
- Exam gloves are absolutely essential (available from local drug stores, bookstore and the CSU chemistry storeroom; Nitrile gloves are recommended above Latex gloves as the chemicals used for specimen preparation can penetrate though the latex gloves)
- A lab coat or some form of dedicated outerwear (ex. coveralls) is required. Other protective or dedicated clothing, including scrubs and/or waterproof shoes is also very helpful.
- If you are sensitive to the odor in lab or have additional concerns about the combination of formaldehyde, phenol, and alcohol used for embalming, a respirator for formaldehyde and/or organic vapors may be useful. Please contact Dr. Magee for further information.
- Respect for animal donors

LABORATORY INFORMATION:

Radiographs, models and bones will be included in the lab and incorporated by mini-lectures, special demos, or your own observations. It is highly recommended that you review the Virtual Anatomy tools and the laboratory demonstration videos before coming to lab each week so that you are better prepared for the laboratory session.

All these materials may be on the lab practicals.

RULES:

1) No food or drink in labs
2) No photography at all in the laboratory
3) No anatomy material leaves labs
4) Handle bones/models with care - use pipe cleaners to point (not pencil/probe)
5) Clean up area before leaving
6) Do not leave lab with gloves on
7) Wash hands before leaving lab room
8) WiPe feet before leaving lab
9) No visitors without permission from the course instructor
10) No shorts, skirts, or sandals of any type
A policy of the College of Veterinary Medicine and Biomedical Sciences (CVMBS) is maintained to identify, control or minimize environmental hazards associated with the work and study of undergraduate students, graduate students and veterinary medical students. It is the intent of this document to disclose potential risks so that students can make informed judgements about their participation in the college's curriculum and notify the college of any reasonable accommodations that may be required. Examples of potential health and safety hazards are: toxic drugs and chemical; inhalation anesthetics; physical agents such as ionizing and non-ionizing radiation; infectious biological agents; factors contributing to accidental injury; and stress and fatigue.

The CVMBS maintains environmental conditions, which provide adequate protection for the normal healthy student. The potential for human illness or injury increases when student or worker is pregnant, nursing an infant or temporarily disabled from any cause, i.e., broken leg, disease, etc.

The steps and procedures outlined in this document are designed to provide optimal protection to the student. These guidelines apply only to the CVMBS and are not to conflict with, or supersede University policy.

**DEFINITIONS**

1. **Environmental Hazard:** A condition or agent in the environment capable of adversely affecting the health and well-being of a student or unborn child.

2. **Student:** All persons formally enrolled in the CVMBS for the purpose of advancing their education. This includes: undergraduate, graduate, veterinary medical students, and post doctoral fellows.

3. **Temporarily Disabled:** Those students experiencing a transient condition that may make them more susceptible to potential environmental hazards.

**RESPONSIBILITIES**

1. Students are responsible for making decisions regarding their own health and/or the health of any unborn child or nursing infant and for evaluating the risks present in their academic programs.

2. The student is responsible for informing appropriate college personnel of a temporary disability and for requesting reasonable accommodation. Adequacy of protection is contingent upon following the prescribed procedures below.

**THE TEMPORARILY DISABLED OR PREGNANT STUDENT SHOULD**

1. Contact a physician immediately and receive recommendations for a plan to minimize exposure to the hazards possibly associated with a student's assignments.

2. Inform the Assistant Dean for Admissions and Advising of a temporary disability as early as possible in order that steps may be taken to provide reasonable accommodation.

**AVAILABLE OPTIONS**

1. **Withdrawal as a student.** The temporarily disabled student can consider withdrawing as a student and plan to be readmitted in the future. This option may minimize risks and reduce concerns regarding health and safety but has obvious impacts on the scheduled completion of academic work.

2. **Continuation as regular student with schedule and assignment changes.** This option may delay the time of graduation and may entail some risk.