VTS 130
Animal Anatomy and Physiology
for Veterinary Sciences
Course Syllabus
Instructor name
xxx@uaf.edu
474-5731 or 1-888-474-5207
Spring 2008

<table>
<thead>
<tr>
<th>Office Location:</th>
<th>Harper Bldg, Room 124</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Hours:</td>
<td>TBD</td>
</tr>
</tbody>
</table>
| Mailing Address:         | Interior-Aleutians Campus  
                          | PO Box 756720          
                          | Fairbanks, AK 99775    |
| Phone:                   | 907-474-5731          |
| Fax:                     | 907-474-5561          |
| Class Meeting Information: | W and F, 6:00 – 7:30 pm, lectures  
                          | This course is offered by Elluminate Live software. This is a type of software used on the internet for interactive teaching. This requires students to have access to a computer, an internet connection and a headset that has earpieces and a microphone. Lectures will be given as listed above. Two at-home laboratories are to be completed. In addition, a five day intensive laboratory will be held at in Fairbanks, where students can work with each other and the instructor to learn gross anatomical structures and develop early veterinary science skills. |
| Prerequisites:           | Required: VTS 101 prior to or concurrent with, high school biology or equivalent, or by instructor approval |
| Credits:                 | 4 (3+3+0)             |

A. COURSE DESCRIPTION

This course explores the anatomy of the dog, cat, avian, cattle, hog, sheep, goat, horse, reindeer, musk ox, and bison. The anatomy is approached from a functional standpoint (body systems) and includes select physiology of each body system. In addition, native Alaskan terms for anatomical structures can be discussed as time allows.
B. COURSE GOALS
The goal of this course is to teach the anatomy of domestic pet, farm animals and other domesticated animal species. The course will provide terms and an understanding of the function of the anatomical features as well.

C. STUDENT LEARNING OUTCOMES
At the end of this course a student should be familiar with general anatomy of the following animals: dog, cat, avian, cattle, hog, sheep, goat, horse, reindeer, musk ox, and bison. The student will learn western terms for anatomical structures. In addition, the student will have an understanding of how the body part works and its relationship, in terms of function, with other body systems. The laboratory portions of this course will give the student the spatial insights of gross anatomy. In addition, the examination of microscopic anatomy with slides will correlate the gross anatomical structure with its microscopic structure and lead to a better understanding of design and function.

D. TEXTBOOKS AND MATERIALS
1) Functional Anatomy and Physiology of Domestic Animals.  
   William O. Reece.  
   Iowa State University Press. Ames, Iowa. © 2004  
   ISBN: 0781743338

2) Clinical Anatomy & Physiology for Veterinary Technicians  
   Thomas Colville, Joanna Bassert  
   Mosby. North Dakota State University. Fargo, ND. © 2001  
   ISBN: 0323008194

3) Cat dissection: A Laboratory Guide  
   Connie Allen  
   ISBN: 978047170141

E. COURSE SUPPLIES
   -Preserved animal specimen (sheep eye)  
   -Skeletal specimens (dog skeleton)  
   -Latex gloves, 1 box  
   -Necropsy knife  
   -Dissection kit, to include:  
     -scalpel handle and 5 #10 blades  
     -scissors  
     -1 pair Adson brown tissue forceps

F. COURSE POLICIES
   Lessons are to be completed on a timely basis. Laboratory attendance is mandatory. Students are expected to participate in classroom discussions and laboratory exercises.
Any assignments or examinations that are completed beyond the due date will be reduced one letter grade per day, unless previous approval from the instructor is obtained.

G. **METHODS OF EVALUATION**

Grading will be based on mid-term examinations (2 at 20% each), a laboratory practical examination (20%), and a final examination (40%). A=90% or higher, B=80-89%, C=70-79%, D= 60-69%, F<60%.

H. **SUPPORT SERVICES**

UAF Disabilities Services for distance Students: UAF has a Disability Services office that operates in conjunction with the College of rural Alaska’s campuses and UAF’s Center for Distance Education. Disability Services is a part of UAF’s Center for Health and Counseling and provides academic accommodations to enrolled students who are identified as being eligible for these services.

If you are eligible, please visit [http://www.uaf.edu/chc/disability.html](http://www.uaf.edu/chc/disability.html) on the web or contact a student affairs person at your nearest local campus. You can also contact Disability Services on the Fairbanks Campus at (907) 474-7043.

I. **COURSE CALENDAR**

*This schedule is fluid and WILL be updated through the semester.* You will receive an updated version when updated. Classes are 90 minutes in duration and will be held Wednesdays & Fridays, 6:00-7:30 pm.

**Lesson 1:** Wednesday 6:00-7:30 pm. Lecture content:
- Student & instructor introductions. Name, village of residence, veterinary/animal experiences
- Animal ethics & welfare issues, Institutional Animal Care and Use Committee introduction, expectations of students for course

**Lesson 2:** Friday 6:00-7:30 pm. Lecture content:
- Western vs. Alaskan native terminology
- Alaskan native mentor interview, native culture and animal anatomy
- Basics of anatomical structure and function

**Lesson 3:** Wednesday 6:00-7:30 pm. Lecture content:
- Body water – properties & functions of solutions
  - distribution of body water, water balance, dehydration

**Lesson 4:** Friday 6:00-7:30 pm. Lecture content:
- Body heat and temperature regulation

**Lesson 5:** Wednesday 6:00-7:30 pm. Lecture content:
- Skeletal anatomy of the dog (canine) and cat (feline); including joints, synovial fluid
- Anatomical differences between dogs and cats
Lesson 6: Friday 6:00-7:30 pm. Lecture content:
-Skeletal anatomy of domestic (bovine, caprine, ovine) & wild (reindeer, musk oxen, bison) ruminants and swine; including joints, synovial fluid
-Ruminant vs. carnivore musculoskeletal differences

Lesson 7: Wednesday 6:00-7:30 pm. Lecture content:
-Skeletal anatomy of equine; including joints, synovial fluid
-Equine dental formulas

Lesson 8: Friday 6:00-7:30 pm. Lecture content:
-Muscular anatomy of the dog, cat
-Anatomical differences between dogs and cats

Lesson 9: Wednesday 6:00-7:30 pm. Lecture content:
-Muscular anatomy of the cow, horse
-Anatomical differences between ruminants and horses

Lesson 10: Friday 6:00-7:30 pm. Lecture content:
-Musculoskeletal anatomy of avian species

Lesson 11: Wednesday 6:00-7:30 pm. Lecture content:
-Integument system – organization, structures
- Examination #1 – Lessons 1 – 10
-Bone set laboratory to be completed by this date

Lesson 12: Friday 6:00-7:30 pm. Lecture content:
-Nervous system – organization, structure, transmission mechanisms

Lesson 13: Wednesday 6:00-7:30 pm. Lecture content:
-Nervous system – species specific structures & differences

Lesson 14: Friday 6:00-7:30 pm. Lecture content:
-Cardiovascular system – organization, structures
-Heart & pericardium, blood vessels, lymphatics, blood flow & pressure

Lesson 15: Wednesday 6:00-7:30 pm. Lecture content:
-Cardiovascular system – species specific structures & differences

Lesson 16: Friday 6:00-7:30 pm. Lecture content:
-Respiratory system – organization, structures, pulmonary ventilation

Lesson 17: Wednesday 6:00-7:30 pm. Lecture content:
-Respiratory system – species specific structures & differences
- Oxygen & carbon dioxide transport, diffusion of respiratory gasses
Lesson 18: Friday 6:00-7:30 pm. Lecture content:
- Gastrointestinal system - organization, structures, functions
  - monogastric digestion, absorption

Lesson 19: Wednesday 6:00-7:30 pm. Lecture content:
- Gastrointestinal system - organization, structures, functions
  - ruminant digestion, absorption

Lesson 20: Friday 6:00-7:30 pm Lecture content:
- Urinary system – organization, structures, functions
  - differences in species

Lesson 21: Wednesday 6:00-7:30 pm. Lecture content:
- Reproductive system – female; organization, structures
  - reproductive cycle physiology

Lesson 22: Friday 6:00-7:30 pm. Lecture content:
- Reproductive system – male; organization, structures
  - Examination #2 – Lessons 11 – 21

Lesson 23: Wednesday 6:00-7:30 pm. Lecture content:
- Endocrine system
  - hormones, location and function of pituitary, thyroid, parathyroid, adrenal and pancreatic glands

Lesson 24: Friday 6:00-7:30 pm. Lecture content:
- Blood – cell types & function, hemostasis

Lesson 25: Wednesday 6:00-7:30 pm. Lecture content:
- Immune system – cells, antibodies
  - physiology of autoimmune disease, cancer

Lesson 26: Friday 6:00-7:30 pm. Lecture content:
- Special senses – differences in species
  - Sheep eye dissection laboratory to be completed by this date

Lesson 27: Wednesday 6:00-7:30 pm. Lecture content:
- Review for final exam
LABORATORIES

Laboratory 1:
Laboratory 1 will consist of studying a canine bone set at home. The bone set will be mailed to students for study during the semester and should be completed within a specific time frame. A set of objectives and questions will be sent with the sets. (2 hours)

Laboratory 2:
Laboratory 2 will consist of an at-home dissection of a sheep eye, which is preserved in formalin. The sheep eye will be purchased from a laboratory supply company and will be sent to each student. A set of objectives and questions will be sent with the dissection materials. (2 hours)

Laboratory 3:
Laboratory 3 will be an intensive laboratory to be given over five days at the end of the lecture series. This will be held on the UAF campus in Fairbanks. Students are responsible for travel, food and lodging costs for the lab unless they are already funded students in the Veterinary Science USDA cohort group.

The intensive laboratory days will consist mainly of gross dissection of female and male feline specimens that have been prepared and purchased from a biological teaching supply company. Students will work in pairs for the dissection exercises. If a deceased domestic or wild animal is donated to the program during the time of the laboratory, we will also make use of those specimens for further learning.

Day 1: (8 hours) Gross dissection of feline specimens:
- comprehensive dissection of muscles and joints of thoracic limb, pelvic limb
- comprehensive dissection of vessels and nerves of the thoracic & pelvic limbs
- comprehensive dissection of muscles and joints of axial skeleton

Day 2: (8 hours) Gross dissection of feline specimens:
- dissection of heart, lungs, remaining thoracic viscera
- dissection of abdominal viscera
- dissection of vessels and nerves of abdominal & pelvic viscera

Day 3: (8 hours) Gross dissection of feline specimens:
- dissection & comparison of gastrointestinal tract
  - comparison of monogastric vs. ruminant vs. equine
- dissection of the nervous system
  - brain, meninges, spinal cord, vessels

Day 4: (4 hours) Gross dissection of feline specimens:
- dissection of genitourinary tracts
  - renal, male and female reproductive systems

Day 5: (8 hours) Microscopic examinations:
- Reproductive cytology
-canine heat cycle epithelial cell cytology
-semen cytology
-Additional slide review of the following slides from slide sets:
  -Respiratory mucosa – trachea, bronchi, bronchioles, alveoli
  -Digestive mucosa – stomach, duodenum, jejunum, ileum, colon, rectum
  -Liver cross section – hepatic ducts, centrilobular architecture, hepatic vasculature
  -Lung cross section – interstitial tissue, alveolar capillaries
  -Male reproductive system – testes, epididymus, seminal vesicles, erectile tissues
  -Female reproductive system – ovarian, uterus, fallopian tubes, cervix, vagina
  -Brain – cerebrum, cerebellum, brainstem
  -Skin – epidermis, connective tissue, subcutaneous tissue, dermis
-Slide review- microscopic examples of common cancers in domestic animals
-Equine dental model formula reviews (1 yr., 3 yr., 5 yr., 10 yr., 15 yr., 20 yr., 30 yr.)
  -charts of equine age dental formulas
  -comparison of equine to specimens of moose maxilla and mandible

**Laboratory practical examination** – to be given at the completion of the laboratory intensive
**Final examination (comprehensive)** – to be given and due at a date to be determined, will be a
take home examination