

# On behalf of A&P, welcome to KSU- College of Veterinary Medicine



We are delighted you chose to spend the next 4 years with us!

# Year 1: Preclinical Instruction



**Dr. Hans Coetzee, BVSc, PhD, DACVCP, DACAW, DECAWSEL**  
**Department Head, Anatomy and Physiology**

# Who are we?

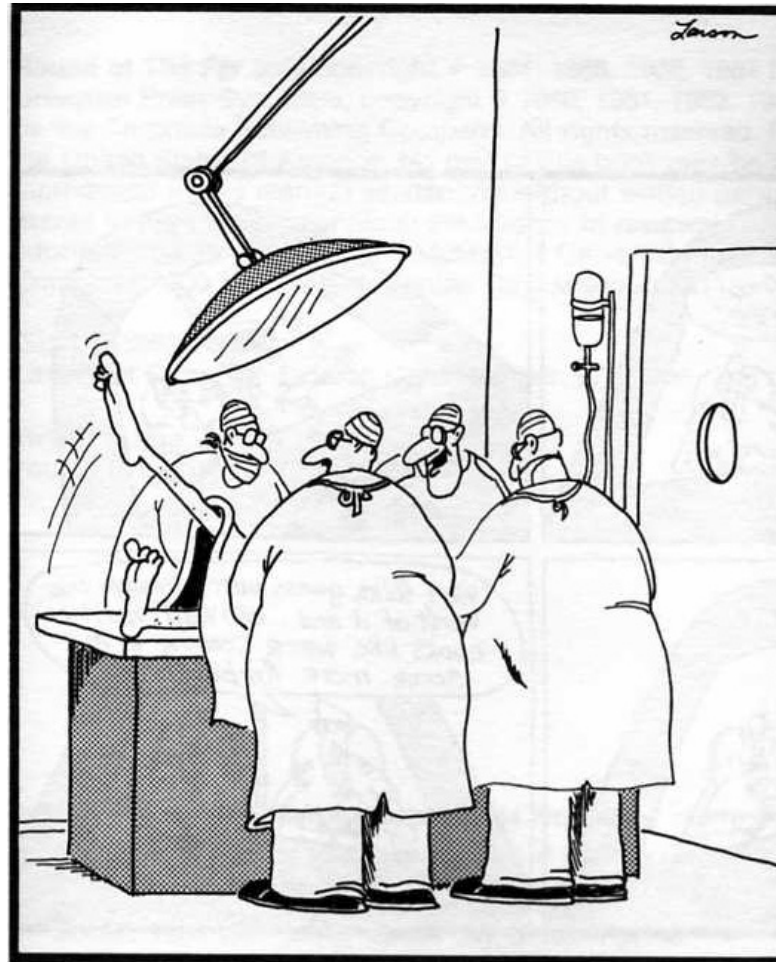
## Department of Anatomy and Physiology



# Introductions

# What do we teach?

## Year 1: What does "normal" look like?



"Whoa! *That* was a good one! Try it, Hobbs — just poke his brain right where my finger is."

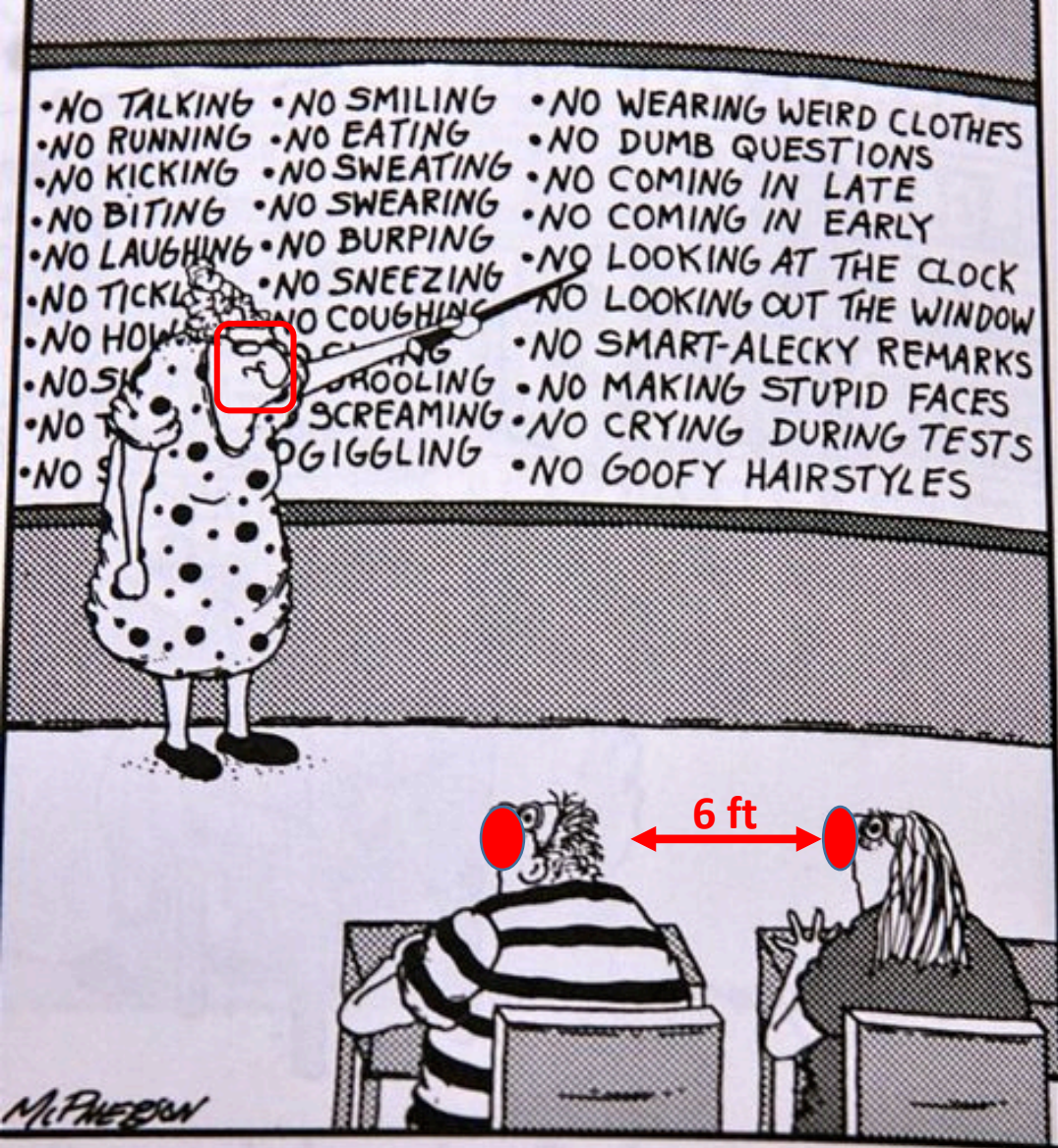


## First Year

Fall Semester	Hours	Spring Semester	Hours
VAP 804 Veterinary Physiology	5	VAP 816 Gross Anatomy II	5
VAP 806 Gross Anatomy I	6	VAP 818 Veterinary Physiology II	6
VAP 808 Intro to Research Concepts and Values	1	VCS 816 Clinical Skills II	1
VAP 810 Microanatomy	5	VDMP 817 Veterinary Immunology	3
VCS 809 Clinical Skills I	1	VDMP 818 Principles of Epidemiology	2
VDMP 800 Career Development	0	Electives	3
Electives	2		<b>20</b>
	<b>20</b>		

Wear your mask, wash your hands, stay 6 ft. apart

# What to expect in Year 1



Mrs. Mutner liked to go over a few of her rules on the first day of school.

# What to expect in Year 1, Fall Semester

- The **BIG 3** courses in Year 1, Fall Semester are;  
Abel)
  - **Anatomy** (Drs. Klimek, Sparks, Malreddy, Szladovits, Tamura, Basel & Abel)
    - **VAP 810**: Microanatomy (5 credits)
    - **VAP 806**: Gross Anatomy I (6 credits)- Anatomy of the Dog
  - **Physiology** (Drs. Schultz, Shi, Basel and Musch )
    - **VAP 804**: Physiology I (5 credits)- Cellular level Physiology
  - **Clinical Skills** (Dr. Shane Lyon)
    - **VCS 809**: Veterinary Clinical & Professional Skills (1 credit)
- Other courses in Fall Semester;
  - **VDMP 800**- Career Development (Dr. Roush) (1 credit)
  - **VAP 808**- Research Concepts and Values (Dr. Malreddy) (1 credit)
- Electives (2 credits)



# FALL SEMESTER Year 1

	8:00 AM	8:15 AM	8:30 AM	8:50 AM	9:00 AM	9:15 AM	9:30 AM	9:50 AM	10:00 AM	10:15 AM	10:30 AM	10:50 AM	11:00 AM	11:15 AM	11:30 AM	11:50 AM	12:00 PM	12:15 PM	12:30 PM	12:50 PM	1:00 PM	1:15 PM	1:30 PM	1:50 PM	2:00 PM	2:15 PM	2:30 PM	2:50 PM	3:00 PM	3:15 PM	3:30 PM	3:50 PM	4:00 PM	4:15 PM	4:30 PM	4:50 PM		
Monday	Exam								VAP 810 Micro Anatomy T301				VAP 804 Veterinary Physiology I T301										VAP 806 Gross Anatomy I T301				VAP 806 Gross Anatomy I Lab T308				VAP 806 Gross Anatomy I Lab T308				VAP 806 Gross Anatomy I Lab T308			
Tuesday	VCS 809 Clinical Skills I (G1-3) T111								VCS 809 Clinical Skills I (G4-6) T111								Elective				VAP 804 Veterinary Physiology I T301				VAP 806 Gross Anatomy I T301				VAP 806 Gross Anatomy I T301									
	VAP 810 Micro Anatomy Lab G4-6 T307 G7-9 online				VAP 804 Veterinary Physiology T301				VAP 810 Micro Anatomy Lab G1-3 T307 G10-12 online																													
Wednesday	VDMP 800 Career Development T301		VAP 810 Micro Anatomy Lab T307				VAP 810 Micro Anatomy Lab T307		VAP 810 Micro Anatomy Lab T307						VAP 808 Intro to Research T301				VAP 806 Gross Anatomy I Lab T308				VAP 806 Gross Anatomy I Lab T308				VAP 806 Gross Anatomy I Lab T308											
Thursday	VCS 809 Clinical Skills I (G7-9) T111								VCS 809 Clinical Skills I (G10-12) T111								Elective				VAP 806 Gross Anatomy I Lab T308				VAP 806 Gross Anatomy I Lab T308				VAP 806 Gross Anatomy I Lab T308									
	VAP 810 Micro Anatomy Lab G10-12 T307 G1-3 online				VAP 804 Veterinary Physiology T301				VAP 810 Micro Anatomy Lab G7-9 T307 G4-6 online																													
Friday					VAP 804 Veterinary Physiology I T301				VAP 810 Micro Anatomy T301				VAP 810 Micro Anatomy T301				Elective				Elective																	

VAP 804 - Physiology I - Dr. Bruce Schultz

VAP 806 - Gross Anatomy I - Dr. Cathy Sparks

VAP 808 - Intro to Research Concepts & Values - Dr. Pradeep Malreddy

VAP 810 - Microanatomy - Dr. Judy Klimek

VCS 809 - Clinical Skills - Dr. Shane Lyon

VDMP 800 - Career Development - Dr. Jim Roush

Exam Coordinator - Dr. Judy Klimek



# VAP 810- Microanatomy



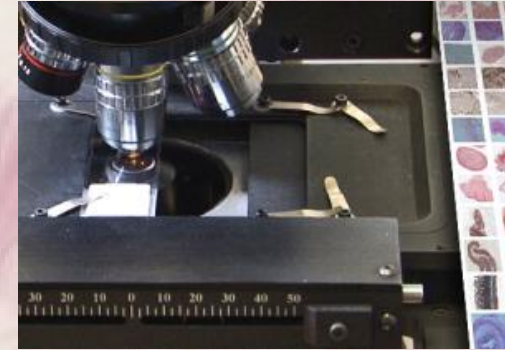
# Goals

- Helping you learn basic medical terminology and facts and principles of **microscopic anatomy of domestic animals**
- Helping you to **recognize microscopic features** of normal cells and tissues
- Helping you **integrate knowledge of the microscopic anatomy with knowledge of gross anatomy**, by aligning course topics as closely as possible
- Preparing you for your eventual use of anatomical knowledge in **pathology** and later in your veterinary career
- Helping you develop the ability to work effectively and efficiently in a **team setting**.



# Teaching Methods

- Lecture (Remote)
- Questioning
- Practice exams
- Pathology cases
- Looking at slides (lots of looking at slides)
- Online weekly quizzes
- Exams
- Group exam reviews





# Instructors

- Dr. Judy Klimek (coordinator)
- Dr. Matt Basel (lecturer and lab instructor)
- Dr. Pradeep Malreddy (lecturer and lab instructor)
- Dr. Masa Tamura (lecturer)
- Dr. Kelli Almes (path cases)
- Sandy Roten (lab manager/technician)



Klimek



Basel



Malreddy



Tamura



Roten



Almes (DMP)

# Microanatomy Lecture Schedule

	8:00 AM	8:15 AM	8:30 AM	8:50 AM	9:00 AM	9:15 AM	9:30 AM	9:50 AM	10:00 AM	10:15 AM	10:30 AM	10:50 AM	11:00 AM	11:15 AM	11:30 AM	11:50 AM	12:00 PM	12:15 PM	12:30 PM	12:50 PM	1:00 PM	1:15 PM	1:30 PM	1:50 PM	2:00 PM	2:15 PM	2:30 PM	2:50 PM	3:00 PM	3:15 PM	3:30 PM	3:50 PM	4:00 PM	4:15 PM	4:30 PM	4:50 PM			
Monday	Exam								VAP 810 Micro Anatomy T301	VAP 804 Veterinary Physiology I T301									VAP 806 Gross Anatomy I T301	VAP 806 Gross Anatomy I Lab T308	VAP 806 Gross Anatomy I Lab T308	VAP 806 Gross Anatomy I Lab T308																	
Tuesday	VCS 809 Clinical Skills I (G1-3) T111								VAP 810 Micro Anatomy Lab G4-6 T307 G7-9 online	VAP 804 Veterinary Physiology T301	VCS 809 Clinical Skills I (G4-6) T111									Elective	VAP 804 Veterinary Physiology I T301	VAP 806 Gross Anatomy I T301	VAP 806 Gross Anatomy I T301																
Wednesday	VDMP 800 Career Development T301	VAP 810 Micro Anatomy Lab T307							VAP 810 Micro Anatomy Lab T307	VAP 810 Micro Anatomy Lab T307												VAP 808 Intro to Research T301	VAP 806 Gross Anatomy I Lab T308	VAP 806 Gross Anatomy I Lab T308	VAP 806 Gross Anatomy I Lab T308														
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Friday					VAP 804 Veterinary Physiology I T301	VAP 810 Micro Anatomy T301							VAP 810 Micro Anatomy T301									Elective	Elective																

- Lecture hours are Monday at 10:00, and Friday at 10:00 and 11:00.
- Usually only the Friday at 11:00 is required attendance.
- We will meet **virtually Monday** at 10:00 following exams for optional **group exam review**.



# Microanatomy Lab Schedule

	8:00 AM	8:15 AM	8:30 AM	8:50 AM	9:00 AM	9:15 AM	9:30 AM	9:50 AM	10:00 AM	10:15 AM	10:30 AM	10:50 AM	11:00 AM	11:15 AM	11:30 AM	11:50 AM	12:00 PM	12:15 PM	12:30 PM	12:50 PM	1:00 PM	1:15 PM	1:30 PM	1:50 PM	2:00 PM	2:15 PM	2:30 PM	2:50 PM	3:00 PM	3:15 PM	3:30 PM	3:50 PM	4:00 PM	4:15 PM	4:30 PM	4:50 PM
Monday	Exam								VAP 810 Micro Anatomy T301	VAP 804 Veterinary Physiology I T301				VAP 806 Gross Anatomy I T301				VAP 806 Gross Anatomy I Lab T308		VAP 806 Gross Anatomy I Lab T308		VAP 806 Gross Anatomy I Lab T308														
Tuesday	VCS 809 Clinical Skills I (G1-3) T111								VCS 809 Clinical Skills I (G4-6) T111				Elective				VAP 804 Veterinary Physiology I T301		VAP 806 Gross Anatomy I T301		VAP 806 Gross Anatomy I T301															
Wednesday	VDMP 888 Career Development T301		VAP 810 Micro Anatomy Lab T307				VAP 810 Micro Anatomy Lab T307		VAP 810 Micro Anatomy Lab T307				VAP 808 Intro to Research T301				VAP 806 Gross Anatomy I Lab T308		VAP 806 Gross Anatomy I Lab T308		VAP 806 Gross Anatomy I Lab T308															
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Friday	VAP 810 Micro Anatomy Lab G10-12 T307 G1-3 online				VAP 804 Veterinary Physiology I T301				VAP 810 Micro Anatomy T301				VAP 810 Micro Anatomy T301				Elective				Elective															

- Labs are Tuesday, Wednesday and Thursday.
- **Everyone meets virtually on Wednesday.**
- You will meet once on Tuesday and once on Thursday, one of which will be an in-person lab, and the other is a Zoom session.
  - Refer to the next slide to see when your group meets.



# Microanatomy Lab Schedule (Tues/Thurs)

	8:00 AM	8:15 AM	8:30 AM	8:50 AM	9:00 AM	9:15 AM	9:30 AM	9:50 AM	10:00 AM	10:15 AM	10:30 AM	10:50 AM	11:00 AM	11:15 AM	11:30 AM	11:50 AM	12:00 PM	12:15 PM	12:30 PM	12:50 PM		
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- **Tuesday 8:00**
  - In person: G 4-6
  - Online: G 7-9
- **Tuesday 11:00**
  - In person: G 1-3
  - Online: G 10-12
- **Thursday 8:00**
  - In person: G 10-12
  - Online: 1-3
- **Thursday 11:00**
  - In person: G 7-9
  - Online: G 4-6

# VAP 806-Gross Anatomy



Dr. Sparks (Coordinator)



Dr. Klimek



Dr. Malreddy



Dr. Abel



Dr. Szladovits



Dr. Lutter

**“Form is crystalized function”**

**Foundation for surgery and pathology**


- Fall: Anatomy of the Dog
- Spring: Comparative anatomy of the horse & goat

# Gross Anatomy – I (VAP 806)

- Preparation
  - Anatomy pre-course = VAP 806 Week 1 material
  - **Read the course syllabus – lots of important information!**
- Lectures
  - Lectures will be pre-recorded and posted in Canvas
    - Potential for face-to-face active learning sessions – stay tuned!
  - 3 lectures / week
  - Complement the dissection material
  - Keep pace in watching so you don't fall behind!

Anatomy Pre Course


Veterinary Gross Anatomy  
Pre-course - 2020




© Dr. Caitlyn Sparks

Click [here](#) for a map of the anatomy lab (TH 308)

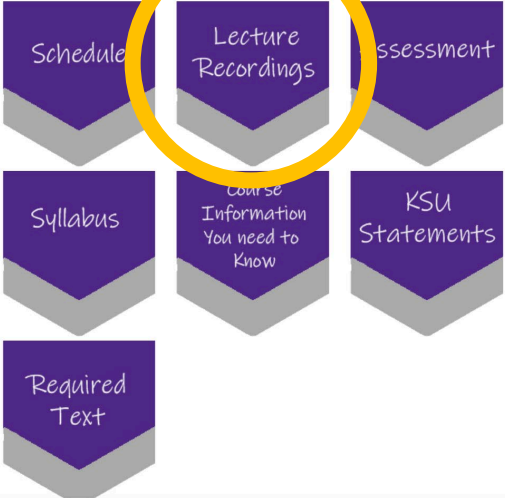
Description:  
The resources in this pre-course are being provided in the event that any of you would like to get ahead on your anatomy before the semester officially begins. The content in this course is reflective of what you will learn within the **first week** in the veterinary anatomy course and focuses mainly on the thoracic cavity and joints. This preview should give you some idea of the rapid pace at which content during a semester is covered. Of course, things may need to be adjusted for this year given the COVID-19 situation, so please check in with your course coordinator, along with the other course faculty, to assure that you receive a great learning experience!



Gross Anatomy I (VAP 806)



© Dr. Caitlyn Sparks



Schedule

Lecture Recordings

Assessment

Syllabus

Course Information You need to Know

KSU Statements

Required Text





# Gross Anatomy – I (VAP 806)

## Laboratories

- 3 groups, A – C, based on your appointed groups through the dean’s office, 1 – 12.

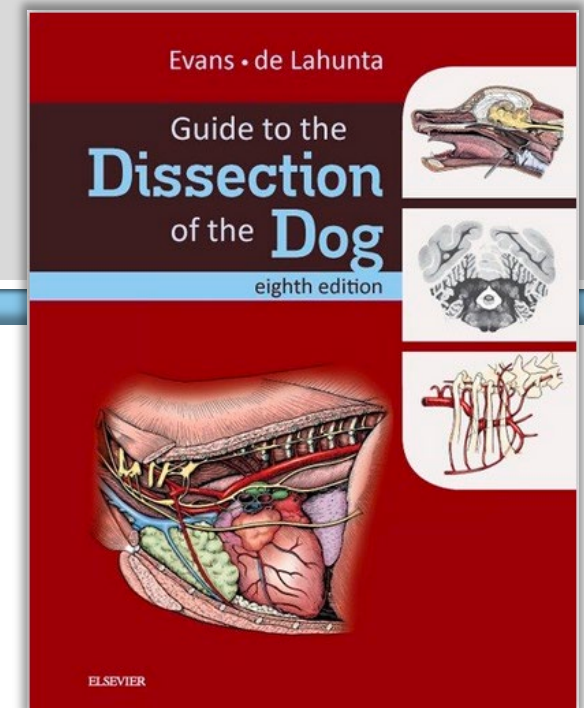
- Group A:** Groups 1, 2, 3, 5
- Group B:** Groups 4, 6, 8, 9
- Group C:** Groups 7, 10, 11, 12

## Required

- Text:** Guide to the Dissection of the Dog
- PPE:**
  - Lab coat – recommend purchasing 2 so you can launder and rotate each week
  - Mask – recommend cloth so they can be laundered frequently

- Come to lab prepared by reading

- the assigned pages in the dog guide (see schedule in Canvas)
- the weekly guidelines (posted in Canvas)



Week 1

[Schedule](#)



Lecture Recordings	Mandatory Resources	Supplementary Resources
	<p>Weekly Guidelines:</p> <ul style="list-style-type: none"> <li><a href="#">Week 1 Overview and Guidelines</a></li> </ul> <p>Videos:</p> <ul style="list-style-type: none"> <li><a href="#">Overview of Dissection Kit</a></li> <li><a href="#">Common Integument / Overview of Skinning</a></li> <li><a href="#">Skinning Troubleshooting</a></li> <li><a href="#">How to Clean Muscles</a></li> </ul> <p>Presentations:</p> <ul style="list-style-type: none"> <li><a href="#">Proper Instrument Handling</a></li> <li><a href="#">Preparing to Remove the TL</a></li> <li><a href="#">Feline TL Bones</a></li> </ul>	<p>Listing of Terms:</p> <ul style="list-style-type: none"> <li><a href="#">Bone and Muscle Terminology</a></li> <li><a href="#">Week 1 Listing of Terms</a></li> </ul> <p>Lab Review Videos:</p> <ul style="list-style-type: none"> <li><a href="#">Bones of the Canine TL – Part 1</a></li> <li><a href="#">Bones of the Canine TL – Part 2</a></li> <li><a href="#">Extrinsic Muscles of the Canine TL</a></li> <li><a href="#">Intrinsic Muscles of the Canine TL – Proximal</a></li> <li><a href="#">Intrinsic Muscles of the Canine TL – Distal</a></li> </ul> <p>Interactive Videos: See Anatomy Pre-Course in Canvas</p> <p>Interactive PowerPoints: See Anatomy Pre-Course in Canvas</p> <p>Other:</p> <ul style="list-style-type: none"> <li><a href="#">Thoracic Limb Bones Chart</a></li> <li><a href="#">Thoracic Limb Muscles Chart</a></li> </ul>
On Task		

# Physiology is ....

- Physiology is the study of life.
- Physiology describes the vital functions of living organisms and their organs, cells, and molecules.
- **Physiology is the reference and foundation for**
  - **pathology,**
  - **pharmacology, and**
  - **medicine**

## Physiology in the Curriculum

AP737 Physiology I: Physiology at the level of cells and molecules

AP747 Physiology II: Physiology at the integrated level of organs and organisms

# VAP 804 Physiology I: A&P Faculty



**Dr. Schultz**  
Course Coordinator



**Dr. Basel**



**Dr. Shi**



**Dr. Musch**



**Dr. Sparks**

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## VAP 804 Physiology I: Sections

**Dr Schultz**

**Basic Chemical & Biophysical Principles**  
**Basics of Neural Communication**

**Dr Basel**

**Cell Signaling**  
**Molecular Biology, Matrix, Adhesion, and Cytoskeleton**

**Dr. Sparks**

**Senses**

**Dr Shi**

**Cell Metabolism & Host Defense**

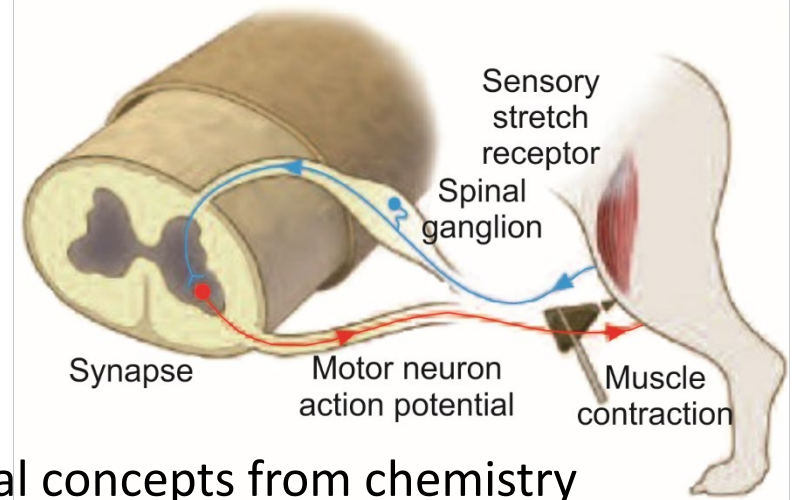
**Dr Musch**

**Muscle Structure and Function**



# VAP 804 Physiology I (Slide courtesy of Dr. Schultz)

- Functions of the animal body are described with a **primary focus at the cellular and molecular level with correlations to clinical topics.**
- **Basic physiological and pathophysiological mechanisms** are examined in the context of the cell environment, intermediary metabolism and cell signaling.
- First semester veterinary students are expected to apply fundamental concepts from chemistry and physics to the animal body with particular focus on **communication between cells and events that occur at the cellular and subcellular levels as they develop a foundation for pathology, pharmacology and medicine.**
- The image depicts a patellar reflex where specialized receptors sense muscle stretch and initiate an action potential in a sensory nerve. The nerve releases chemicals in the spinal cord that stimulate a nearby motor neuron and an action potential carries the signal back to the muscle where the release of other signaling chemicals cause the muscle to contract. **In VAP 804 we will learn of the mechanisms that can account for all of these events.**



# VAP 818 Physiology II: Faculty



**Dr. Kumari**  
Course Coordinator



**Dr. Poole**



**Dr. Fong**



**Dr. Weiss**



**Dr. Nagaraja**



**Dr. Musch**

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## VAP 818 Physiology II: Sections

**Dr. Kumari**

**Reproductive Physiology**

**Dr. Poole**

**Pulmonary Physiology**

**Dr. Fong**

**Renal Physiology**

**Digestive Physiology of Monogastric Animals**

**Dr. Weiss**

**Endocrine Physiology**

**Dr. Nagaraja**

**Digestive Physiology of Ruminant Animals**

**Dr. Musch**

**Cardiovascular Physiology**





**Dr. Shane Lyon**

# VCS 809- Clinical Skills



**Susan Rose**

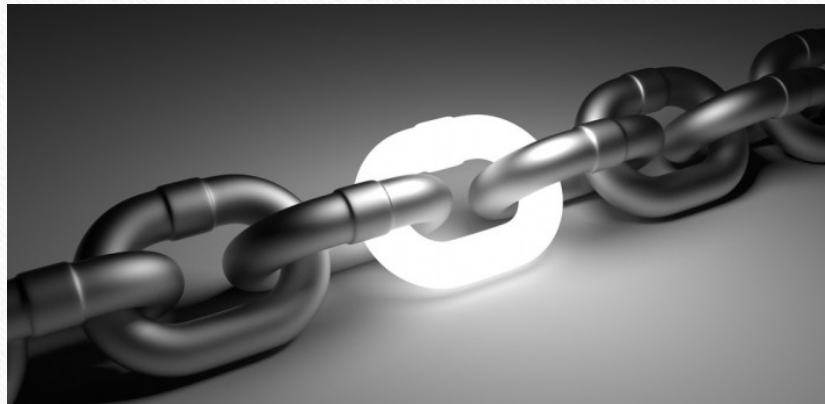
Shane Lyon, DVM, MS, DACVIM (SAIM) – [sdlyon@k-state.edu](mailto:sdlyon@k-state.edu)

Susan Rose, RVT

Mosier Hall O-221

# Why Clinical Skills?

- To integrate learning from all departments, creating links between content areas.



- To set students up for success on the clinic floor and beyond:  
We can introduce skills **NOW** that you will need to succeed **LATER**



## Which Clinical Skills?

*The Goal of Year 1 is to Learn what Normal Is*

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- ***NORMAL*** Animal Behavior
  - How to “read” the patient
  - Safe approach to handling and restraint





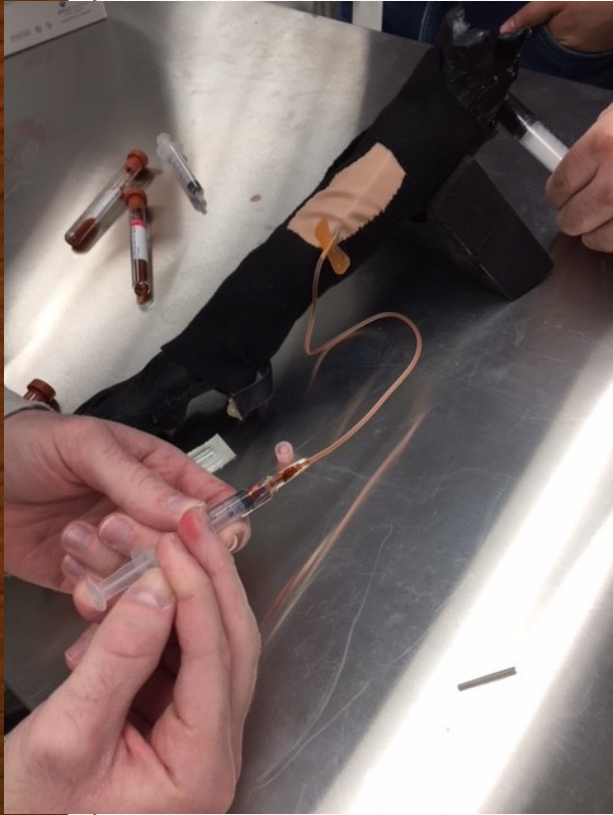
# The Normal Physical Exam



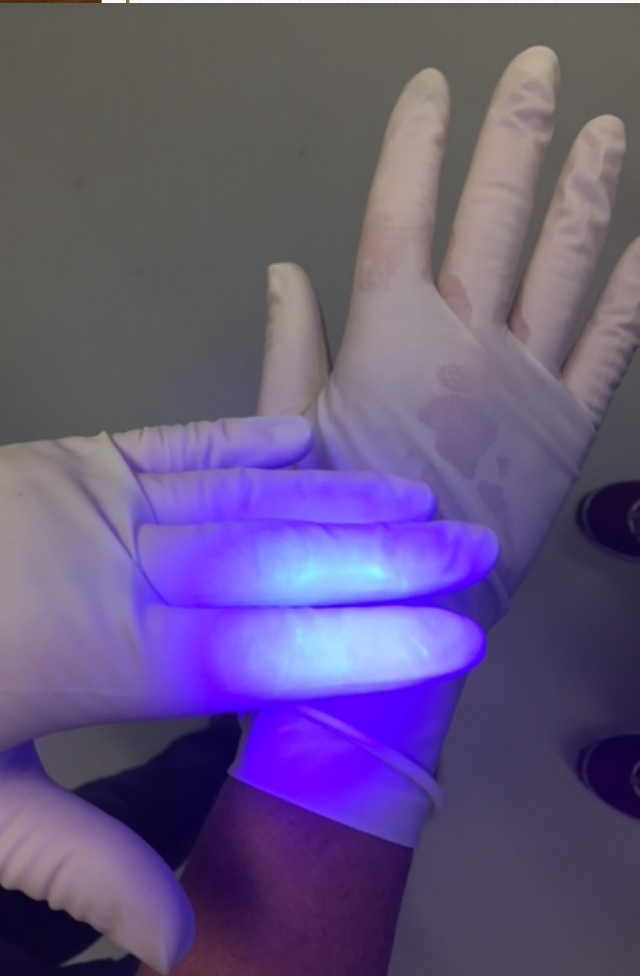


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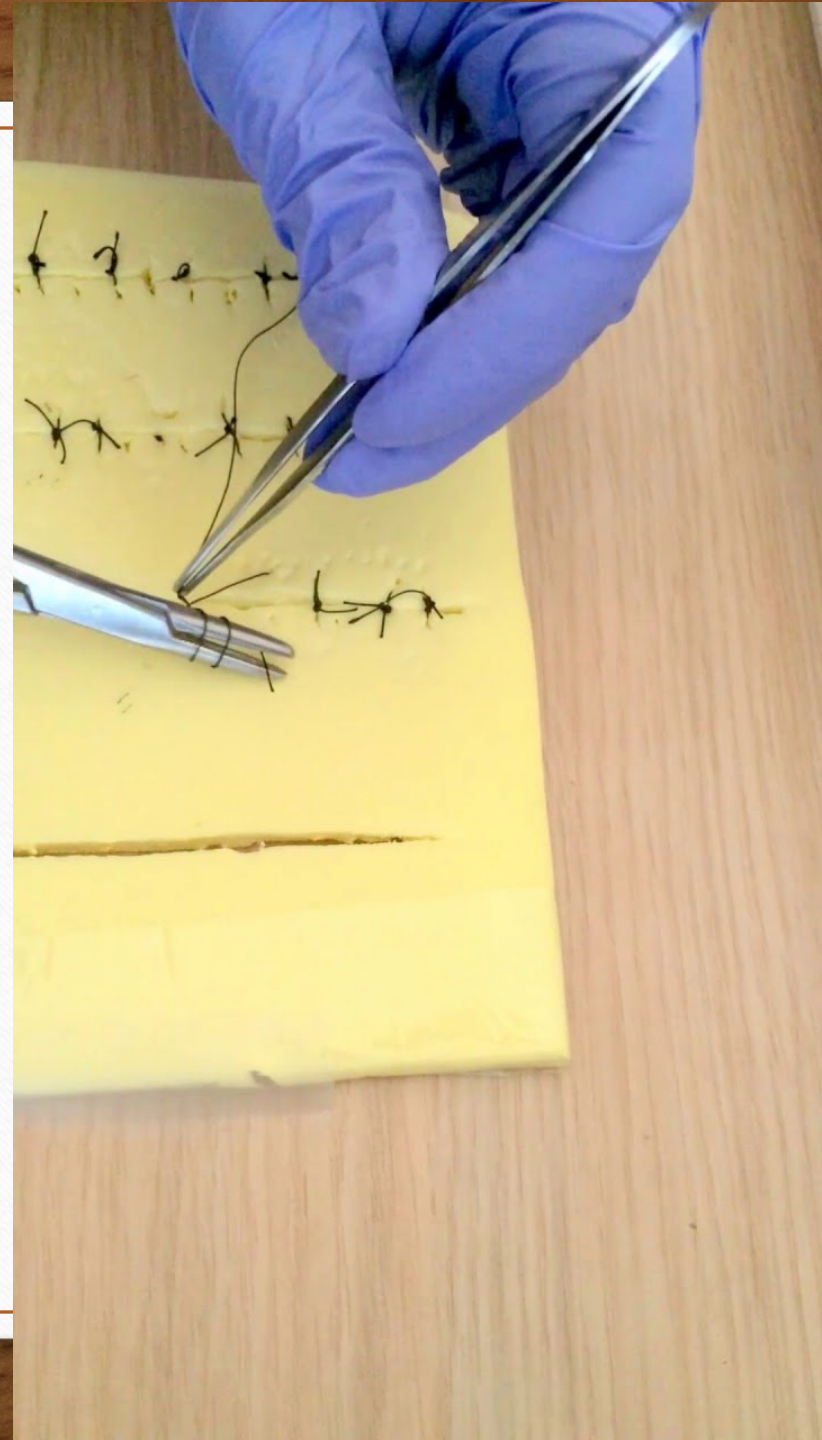
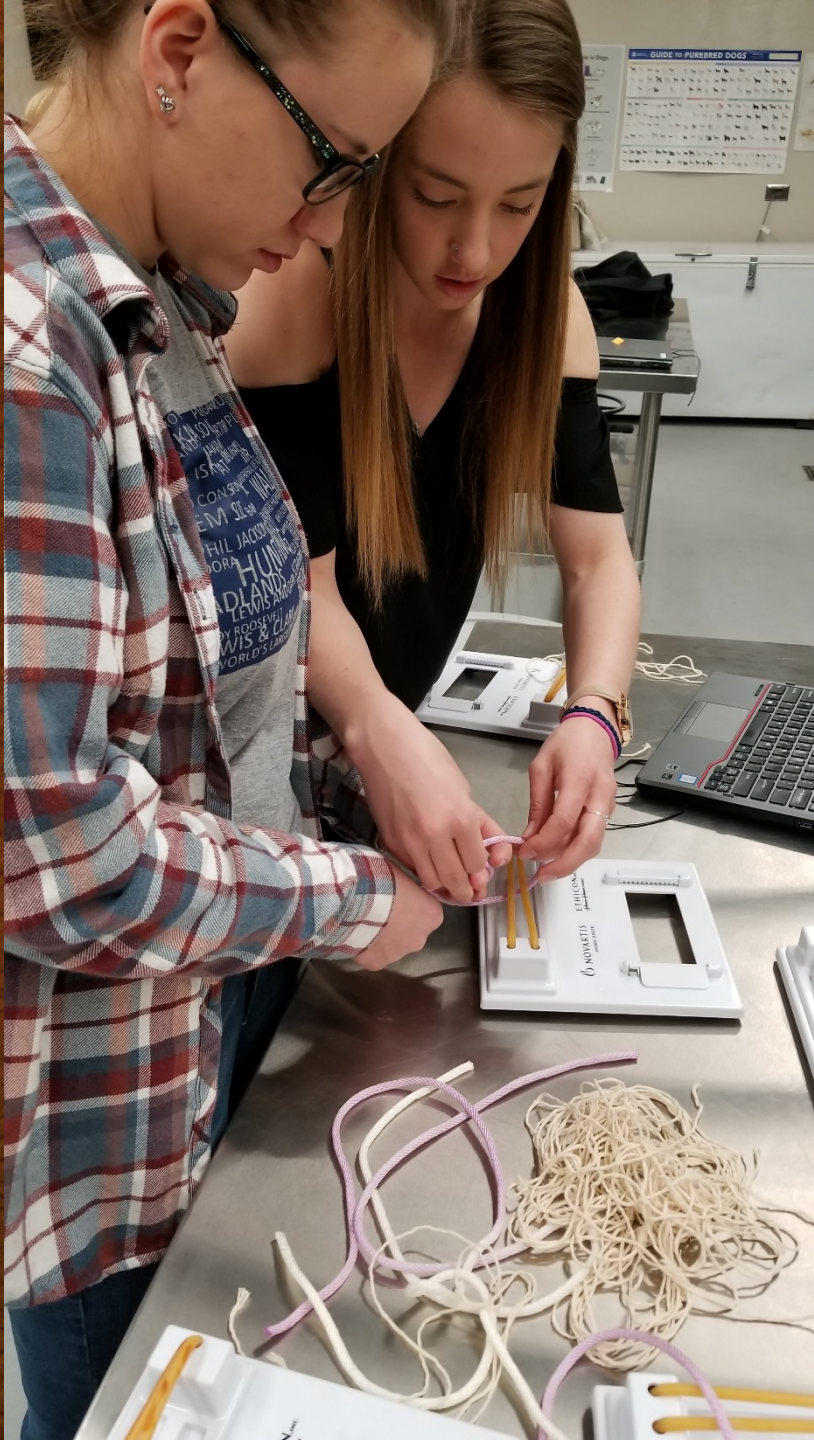
*Students will learn how to perform COMMON procedures*













# Electives offered for 1<sup>st</sup> Year in the Fall Semester

Title	Faculty Coordinator
History of Veterinary Medicine	Dr. Howard Erickson
Stem Cell and Regenerative Medicine	Dr. Mark Weiss
Comparative Embryology	Dr. Judy Klimek
Topics in Business Principles for Veterinary Practice	Dr. Sarah Kaufman
Practicing Veterinary Medicine in a Multicultural Society	Dr. Ronnie Elmore
Basics of Bovine Theriogenology	Dr. Ronnie Elmore
Topics in Shelter Basics: Medicine & Management	Dr. Brad Crauer
Trade and Agricultural Health	Dr. Justin Kastner
International Veterinary Medicine	Dr. Tesfaalem Sebhatu

# What to expect in Year 1, Spring Semester

- The **BIG 3** courses in Year 1, Spring Semester are;
  - **Anatomy** (Drs. Klimek, Sparks, Malreddy, Szladovits, Basel, Abel & Lutter)
    - VAP 816: Gross Anatomy II (6 credits)- Comparative anatomy
  - **Physiology** (Dr. Kumari, Poole, Musch, Fong, Weiss and Nagaraja)
    - VAP 818: Physiology II (6 credits)- Physiology at the organ level
  - **Clinical Skills** (Dr. Lyon)
    - VCS 816: Veterinary Clinical & Professional Skills (1 credit)
- Other courses in Fall Semester;
  - VDMP 817- **Veterinary Immunology** (3 credits)
  - VDMP 818- **Principles of Epidemiology** (2 credits)
- Electives (3 credits)



# Electives offered for 1<sup>st</sup> Year in the Spring Semester

Title	Faculty Coordinator
Special Interest Anatomy	Dr. Pradeep Malreddy
Comparative Embryology	Dr. Judy Klimek
Veterinary Neuroscience	Dr. Zsolt Szladovits
Applied Anatomy	Dr. Cathryn Sparks
Topics in Global Veterinary Medicine	Dr. Walter Renberg
Basics of Bovine Theriogenology	Dr. Ronnie Elmore
Topics in Issues in Rural Practice	Dr. Brad White
International Tours	Dr. Walter Renberg

# What to expect at the end of your first year?



- Mealtimes involving meat on the bone will prove to be very “instructional” for your family
- You will find yourself thinking about phosphodiesterase inhibition and rising cAMP levels while standing in line at the coffee shop
- Your pets are going to love you more because you use them as study guides for anatomy and clinical skills
- Thanks to Dr. Poole, you will realize that squash is not just a vegetable!

**Your attitude not your aptitude will determine your altitude!**