



Hands-on Experience

for First and Second Year Veterinary Students

There are many opportunities for first and second-year veterinary students to gain ***hands-on experience with animals and clinical procedures***, prior to the start of their curriculum that includes clinical rotations in the third and fourth years of the program. Experiences can include and are available within; the academic curriculum (classes), club wet labs and field trips, attendance at clinical rounds, volunteering at the VTH, employment opportunities, externships and experiences in the field, as well as various research and clinical volunteer opportunities (outside of the VTH setting). These opportunities give students a chance to become familiar with the clinical facilities, faculty, and staff while gaining practical experience and developing clinical skills. **First and second year students have 24/7 access to the Veterinary Teaching Hospital. They are asked to wear their clinical smocks, professional attire (business casual) or scrubs if helping/observing with clients, and name badges to be welcomed in any department.**

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Curricular Experiences - First and Second Year

- **Anatomy** (1st year) – Students learn anatomical structures on cadavers, live animals, and multimedia tools. Many labs are offered throughout this course on live animals in order to learn anatomy at a higher degree. This includes live horses to evaluate feet and auscultation and fistulated cows to evaluate ruminant abdominal anatomy.
- **Anesthesia machine use** (2nd year)- Students learn the mechanics of both Rebreathing and Non-Rebreathing circuit machines. Students are allowed to work with anesthetic machines at the VTH in order to practice working the machines and understand the mechanics. All students must pass an Anesthesia Machine Practical Exam during their second year, including identifying the components and operation of each system.
- **Bovine/Equine/Canine Reproduction** (2nd year) – Students practice calving procedures with calf cadavers and mock cows with normal and abnormal presentation and orientation of the calf. They learn how to tease mares with stallions to detect which mares are in estrus, ultrasound mares for pregnancy, and practice procedures for collecting vaginal and cervical cytology.
- **Food & Fiber Animal Field Trips** (1st year) – In small groups, students can (this is optional, you can choose to visit two of the options) visit cow/calf operations, cow dairies (conventional and organic), goat dairies and range operations, turkey farms, beef feedlots, and sheep farms.
- **“Foundations in Veterinary Medicine” course series for 1st year students** includes small group practice in physical exams, veterinary ethics, case-based discussions with faculty members, client communication experiences, basic surgical and instrument skills, and small animal handling skills. Students will also learn about history taking skills, how to generate a problem list, and start to generate diagnostic plans.
- **“Foundations in Veterinary Medicine” course series for 2nd year students** includes physical exams in ophthalmology, cardiology, dermatology, pain assessment & orthopedics in addition to veterinary ethics, case-based discussion, client communication experiences, continued surgical skills, forelimb amputation (cadaver), large animal handling skills, and discussion of professional topics.
- **Heart auscultation** (1st year) – Students use stethoscopes with an auscultation machine that simulates murmurs, arrhythmias, and normal heart sounds of dogs, cats, and horses. These are all practiced on live animals brought to campus.
- **Neurologic Exams** (1st year) – Students volunteer their animals in laboratory to practice neurological exams on both normal and abnormal neurological cases.
- **Small Animal Physical Therapy and Rehabilitation (1st & 2nd year):** Students have the opportunity to work with the physical therapy department in the Veterinary Teaching Hospital to learn about the different modalities that are available and the importance of physical therapy and rehabilitation. Students will recognize that rehabilitation is needed for most surgical patients and will learn and help teach the different exercises that can be done by the owner at home.

Club Wet Labs and Field Trips (Student Chapters)

- Please know labs are all subject to change and may not be offered every semester/year based on funding/availability/scheduling. Participation in many of these labs requires students to become a part of student chapters and/or national chapters of the organization through the payment of minimal dues (average of \$20).
- **American Animal Hospital Association**
 - > Canine physical exam wet lab (Students work closely with faculty and learn how to perform a thorough physical exam...an essential diagnostic tool for any veterinarian.)

- > Abdominal ultrasound wet lab (Students perform abdominal ultrasound and learn proper technique using live dogs.)
 - > Clinical procedures wet lab (Students learn and practice common clinical procedures including bone marrow sample collection, trans-tracheal wash, and cerebrospinal fluid tap.)
 - > Dental radiography wet lab (Students learn and practice how to take dental radiographs at a local, specialty dental clinic.)
- **American Association of Bovine Practitioners**
 - > Bovine physical exam lab: students practice rectal palpation, gastric intubation, blood draws, epidural blocks and gastro-intestinal auscultation.
 - > Bovine reproductive tract palpation wet lab: Students practice palpating bovine reproductive tracts in various stages to better understand how to stage where cattle are in the Estrous cycle through rectal palpation.
 - > Bovine necropsy: students learn the proper method for performing a necropsy on cattle and common disease processes that might be seen.
 - > Ultrasound wet lab: students learn how to ultrasound cattle with the use of ultrasound machines and guidance from clinicians, residents, and interns.
 - > Field trips: Colorado Serum Company: Behind the scenes tour with vaccine and research media development company. Students learn about proper care, handling, and hyper-immunization protocols for donor livestock animals.
 - > Pulmonary Arterial Pressure Testing of high altitude cattle wetlabs.
 - > Vaccine wetlabs with Zoetis.
 - > Numerous externships extended to members of this club with various seedstock, feedlot, dairy, and cow/calf operations.
 - **American Association of Equine Practitioners (www.aaep.org)**
 - > Wet Labs: Joint Injection Labs, 2 per year: Students practice injecting joints on equine limbs. Clinicians are available to demonstrate and help assist students in finding the joints.
 - > Farrier Short Course: A 2-day short course focusing on what veterinarians need to know about trimming and shoeing horses. The first day is primarily lecture and the second day is a lab on equine limbs. This is an excellent way to learn anatomy and how to handle the tools.
 - > Reproduction Short Course: A 2-day short course focusing on equine reproduction. Students learn how to palpate mares, artificially inseminate mares, collect stallions, and analyze semen.
 - > Dental Short Course: A 2-day short course focusing on equine dentistry. Students learn how to do a physical exam on the equine oral cavity, what instruments are used in equine dentistry, and how to fix equine oral problems. The students get to use the knowledge they learn on horses and learn how to operate the instruments.
 - > Nasogastric Intubation Lab: Students learn how to pass a nasogastric tube and practice passing one on a horse. This lab also includes a demonstration of an abdominocentesis.
 - > Ophthalmology Lab: Students learn how to perform an equine ophthalmic exam, learn the anatomy of the eye, and practice suturing corneal and eyelid lacerations. .
 - > Equine Chiropractic and Saddle Fitting Lab: With the help of a DVM Doctor of Chiropractic, students learn the basic techniques of equine chiropractic techniques, as well as the biomechanics of saddle fitting.
 - > Equine Lameness and pre-purchase exam lab: Students learn about lameness evaluation and testing procedures in addition to general pre-purchase exam guidelines under direction of Equine Medicine Faculty.
 - > SCAAEP Equine Conference: A 2-day conference covering many current topics in equine practice across all aspects of equine medicine.
 - > Large Animal Emergency Team: Volunteer to be on call for after-hours emergencies of equine and livestock. You will be able to be called in during emergencies to work with and learn from the on-call clinicians, students, and technicians.

- **American Association of Feline Practitioners** (<http://www.cvmbs.colostate.edu/aafp/>)
 - > Feline Physical Exam Wet lab: Practice your physical exam skills on live felines!
 - > Procedures Wet lab: Practice techniques every veterinarian should know, including CSF sampling, esophageal tube placement, bone marrow aspiration, thoracocentesis, and cystocentesis (procedures are practiced on cadavers).
 - > Field Trip to Rocky Mountain Wildlife Conservation Center: See BIG cats up close and tour the facility that provides these animals with a chance to live out their lives comfortably.
 - > Feline Neurological Exam Wet Lab: Practice your neurological exam skills on live felines.
 - > Cat Handling Techniques Wet lab: Learn how to handle and restrain your feline patients!
 - > Cat Care Conference: A daylong conference covering various feline topics.

- **American Association of Small Ruminant Practitioners**
 - > Small Ruminant physical exam lab: Students learn basic information and anatomical differences between small ruminants then practice hands-on physical exams of many small ruminant species.
 - > Sheep Reproduction Laboratory: Students have the opportunity to volunteer with local producers to aid in laparoscopic artificial insemination of ewes.
 - > Small ruminant show veterinary checks: Students assist local veterinarians with show health checks for camelids, goats, and sheep at county fairs, regional, and national shows.
 - > Sheep ultrasound lab: Students learn about proper sheep handling, positioning, and ultrasound techniques for pregnancy checking ewes.
 - > Camelid Shearing Day: Students volunteer at the VTH Camelid shearing day to help shear clients' alpacas and llamas.
 - > Camelid Castration Day: Students participate in castrating client-owned camelids at the VTH.
 - > Neonatal small ruminant care lecture and wet lab where students learn about parturition and neonatal care in a lecture and then practice delivery of camelids with normal and dystocia presentations on cadavers.
 - > Case based discussions on cases seen in practice or at the VTH.

- **American College of Veterinary Internal Medicine**
 - > Labs consisting of: Laparoscopic exploratory surgery using live pigs; liver biopsies and exploratory surgeries.
 - > Otoscopy examination
 - > Pass endoscopy tubes to view the guttural pouches of sedated horses
 - > Mass aspiration wet lab
 - > Bone marrow aspiration and place chest tubes on cadavers

- **American College of Veterinary Pathologists**
 - > Saturday Necropsy: Students help with the pathologists on necropsy Saturday morning.
 - > Weekly Morbidity and Mortality Rounds with Diagnostic Laboratory Pathologists, consisting of discussing pathology from cases that came to the hospital that week.

- **American Holistic Veterinary Medicine Association**
 - > Canine massage
 - > Acupuncture (Canine, Feline, Equine, Bovine, exotics, and military pets)
 - > Organic dairy veterinary medicine
 - > Integrative oncology medicine
 - > Bach Flower Remedy therapy
 - > Small animal physical therapy
 - > Integration of western and complementary medicine in small animal and exotic practices

- **American Veterinary Society of Animal Behavior**
 - > Manners for Mutts: Assisting with clicker training of local shelter animals while being guided/trained/taught by a behavioral professional.

- > Clicker training wet labs for your own pets.
 - > Low stress animal handling in combination with the Feline Practitioners Club.
 - > Behavior symposium: Here there are lectures on behavior topics and open panels. This event is open to students and community members.
- **Colorado State University Pet Hospice Program**
 - > This is a volunteer program to reach out to the local community by providing end of life support for client's pets. First year through third year veterinary students undergo a training program, and are then assigned to cases from the VTH and surrounding area to assist in the end of life decision-making process and work as a liaison between the client and their veterinarian.
- **Colorado Veterinary Medical Association (www.colovma.com)**
 - > Students have the opportunity to attend the annual CVMA conference for free (under the sponsorship of a Colorado veterinarian) to network, attend CE conferences, and socialize with local veterinarians.
 - > Students are welcome at CVMA's monthly meeting to network with local veterinarians.
 - > CVMA's veterinary mentorship program: Students are paired with a veterinarian in Colorado for mentorship during their four years of veterinary education.
- **International Veterinary Medicine Club**
 - > Students have the opportunity to travel to international countries to perform vaccinations, provide animal care, and provide animal education to local clients and animals.
 - > Students also can attend numerous lectures from individuals that have worked in other countries to learn about possibilities for their futures.
- **Laboratory and Research Club**
 - > Meetings involve faculty/clinicians presenting information on their scientific endeavors.
 - > Wet labs include a rodent dissection by one of the laboratory animal medicine residents. This offers students an opportunity to get an in depth view of small mammal anatomy which is not provided by the core courses in the veterinary program.
 - > Wet labs involve laboratory techniques including: flow cytometry and ELISAs.
 - > Rabbit Spay and Neuter: Students will get to learn handling and medical procedures on rabbits, then spay or neuter with the help of the laboratory animal residents.
- **Pain Management Club**
 - > Nerve Block Lab: Students practice nerve blocks for various regions of the body for specific surgeries and procedures as well as epidurals on cadavers.
 - > Acupuncture Lab: Lecture given about the scientific basis, implementation of acupuncture and the benefits. Demonstrations given on volunteer pets.
 - > Students have the opportunity to attend a tour of a local clinic that focuses on rehab and pre-surgical therapy.
 - > Pain Management Team: Spend time in the hospital going over the pain management strategies for the patients in the hospital with an anesthesiologist.
- **Radiology Club**
 - > Weekly rounds on interesting radiology cases.
 - > Practice ultrasound-guided fine needle aspirates on jello molds.
 - > Learn to perform an abdominal ultrasound on student volunteered cats and dogs.
- **Student Association of Veterinary Surgeons**
 - > Lectures in flexible endoscopy, ophthalmology, cardiology, oncology/limb spare, Small Animal GI emergency, Equine GI emergency, Food Animal GI emergency, neurosurgery and fracture repair in large and small animals.
 - > Monthly wet labs including: Equine intestinal resection/anastomosis, Fracture IM Pinning, SA bandaging, LA bandaging/casting, gowning/gloving, Laser Sx (continuing education), Suturing

(instrument ties, hand ties, cadavers). We open these labs up typically to 25-40 people depending on the amount of equipment required and the number of doctors needed.

- > Mentor/mentee program specifically designed for people interested in pursuing a surgical residency.

- **Student Chapter of the Association of Shelter Veterinarians**

- > Annual micro-chipping clinic for the school and community.
- > Opportunity to go to a local shelter and aid in physical exams and learn about their shelter.
- > Opportunity to participate in spay and neuter clinics and shelters in the area and in other states.
- > Opportunity to participate in vaccine clinics put on at the VTH.

- **Student Veterinary Emergency & Critical Care Society** (<http://www.cvmb.colostate.edu/sveccs/>)

- > Volunteering in the Critical Care Unit.
- > Emergency Procedures Wet Lab including: intraosseous catheter placement, chest taps, feeding tubes, jugular cut downs, and tracheostomies
- > FAST Ultrasound Wet Lab
- > First Aid Day for the Community
- > Small Animal CPR lecture and lab
- > Clinician Lectures and Case Presentations

- **Theriogenology Club**

- > Ewe ultrasound wet lab: students are able to take turns ultrasounding sheep and determining their pregnancy status.
- > Mare Reproduction Wet lab- students are exposed to stallion collection, semen evaluation, and mare artificial insemination techniques. Basic reproductive anatomy is reviewed.
- > Ram Breeding Soundness Exams: perform breeding soundness exams on rams with a faculty clinician.
- > Opportunity to be placed on the Canine Welping Team where you can attend scheduled C-sections with a local veterinarian.
- > Opportunity to assist with lambing, calving, or foaling through various operations in the area or various programs within CSU.

- **Zoological Medicine** (http://www.cvmb.colostate.edu/zoo_med_soc/)

- > Behind-the-scenes tour of the Downtown Denver Aquarium (formerly Ocean Journey): Highlights include, observe training sessions of the exhibit's mammals, tour of quarantine area, learn about aquarium veterinarian job, and petting the manta rays.
- > Tour of the hospital at the Denver Zoo: Dr. Knightly leads students through the hospital, explaining how she uses operant conditioning to make Veterinary procedures easier (such as giving vaccinations, weighing newborns, and anesthetizing animals). She shows students the necropsy area, surgical suites, quarantine, and a nursery, where the baby and the veterinarian are on exhibit!

Clinical Rounds

- **Grand Rounds** – Each 4th year student must present one case during the year to the entire veterinary school. All students and faculty are welcome and encouraged to attend. These are great learning experiences for both the student presenter and those in attendance. The case presented is a real case that the student has worked on during one of his/her rotations. There is a question/answer session following each presentation. Grand Rounds are presented each Friday morning.
- **Noon-time Livestock and Equine Rounds** – Livestock and Equine clinicians will present cases and various topics during the lunch hour. All students are encouraged to attend. These rounds are only occasional and an email is set out to students for when they do occur.
- **Twice-daily rounds on each service** (morning and afternoon) – Each rotation group reviews discharged patient cases, discusses ongoing cases, and prepares for incoming cases. Clinicians expect 3rd and 4th year students to prepare and be able to answer questions pertaining to each case on the service. Though

required of 3rd and 4th year students on the service, students from the 1st and 2nd years of the program are invited to attend rounds as time permits. This is a good opportunity to learn when classes are not in session.

Clinical Seminars

- Advances in Clinical Research Seminar Series
 - > Clinical faculty and residents present cutting edge research projects
 - > First Monday of each Month, VTH-ACC 120, 11:30-12:30

Clinical Teams (1st, 2nd, 3rd, and 4th year)

- **Foal Care Team:** On-call teams care for and observe neonates and mares in the barn. Monitoring as necessary, the 2-person foal care team will stay with the foal and notify clinicians of the status of the neonate. Additionally, if one wishes to take the Foaling Management Class, the student is assigned a mare and when she is within an hour or two of foaling, he or she is called to come watch.
- **Large Animal Emergency Team:** The Large Animal Emergency Team is a great chance for students to get hands on experience in the large animal barn before the 3rd and 4th years of school. Students are "on-call" for equine and livestock emergencies. Some of the emergencies include colics, lacerations, torsions, RDAs, dystocias, septic crias and foals, etc. After-hours help is always needed and students get to do much more than just stand around. LAET is a great opportunity for students to familiarize themselves with the veterinary hospital, meet clinicians and residents, and get great hands on experience. LAET is also open to anyone regardless of experience or interests.
- **Palpating Team:** Students are allowed to try-out for the bovine palpations team (generally third year students), which compete annually at the SAVMA conference.
- **VTH Horse Care:** Students are allowed to sign up to help groom, walk, and spend time with the VTH teaching horses.
- **Small Animal Surgery Team:** There is an on-call schedule for students to observe small animal surgeries. If there are surgeries in progress, or if any surgical emergencies are admitted, students on the SAST are called to Small Animal Surgery to observe. In order to participate in this, you have to be a member of the Surgery Club.

Employment Opportunities

- Equine Emergency Surgery Technicians
- Livestock Medicine and Surgery Technician's Intern
- Radiology Technicians
- Small Animal Emergency Technicians
- Small Animal Surgery Technicians
- Other departments as needed. (Miscellaneous duties)
- Student Representative for various organizations (emails are sent out)
- Student research positions

Externships/Field Experiences

- Humane Society Veterinary Medical Association Field Services (HSVMA): <http://www.ruralareavet.org>
- International Veterinary Medical Association Club: The objective of the International Veterinary Medicine Club is to encourage veterinary student involvement in the field of international veterinary medicine in conjunction with the International Veterinary Student Association (IVSA) and to provide opportunities for members to gain professional knowledge in this field. The club sponsors guest speakers who talk about their international veterinary medicine experiences and sponsors veterinary education based trips to foreign countries for CSU PVM students. Faculty Advisor: Dr. Kristy Pabilonia
- Rural Veterinary Experience, Training, and Service: <http://www.r-vets.org/>
 - > Equine veterinary care and castration provided at low cost to horses on reservations in North Dakota and South Dakota.

- VIDAS (International Veterinarians Dedicated to Animal Health): <http://www.vidas.org>
- World Vets: <http://worldvets.org/> - provide veterinary aid and training in developing countries and provide disaster relief worldwide
- Academy of Rural Veterinarians: - provide externship opportunities in successful rural practices.
- The majority of associations/organizations have a list of contacts for potential externships and/or learning experiences.
- Opportunities for stipends are available as a part of many of these programs and even without being awarded a stipend you can participate.

Research Opportunities

- Veterinary Summer Scholars Program: This is a 10-12 week paid summer program to help veterinary students get involved in research they are interested in.
- Individual lab opportunities working with clinicians on various research projects. These opportunities can be in various departments and even different colleges within Colorado State University.

Volunteer Opportunities

- All clinical departments eagerly want 1st and 2nd year students to observe and assist as enthusiasm and time permit.
- Community Practice Volunteering (1st & 2nd year) – Community Practice is designed to provide the student with an opportunity to evaluate and manage typical cases seen in a private practice. The schedule currently includes medicine appointments (preventative health appointments and any non-referred, non-emergency appointments), elective surgery and dentistry. Community Practice provides unique hands-on experience. While all plans need to be cleared with the veterinarian on the service, 4th year students are responsible for the development and implementation of all diagnostic plans and veterinary care in a timely manner. First and second year students are encouraged to volunteer as their class schedule allows and will work with 4th year students honing history taking and physical exam skills as well as learning the standard operating procedures of the James L. Voss Veterinary Teaching Hospital. Interested students should contact Rebecca Ruch-Gallie at rgallie@colostate.edu.
- CSU Pet Hospice volunteer opportunity through Argus Institute at CSU: open to 1st - 3rd year students – <http://www.argusinstitute.colostate.edu/pethospice.htm>
- Ride with ambulatory services (equine, dairy, theriogenology, and livestock)
- Small Animal Physical Therapy and Rehabilitation (1st & 2nd year): Students have the opportunity to work with the physical therapy department in the Veterinary Teaching Hospital to learn about the different modalities that are available and the importance of physical therapy and rehabilitation. Students will recognize that rehabilitation is needed for most surgical patients and will learn and help teach the different exercises that can be done by the owner at home.
- Watch your email: clinical faculty send out emails requesting 1st and 2nd year participation in various field projects.
- **Always ask** – If you have a special area of interest, just ask a faculty or staff member involved if there are volunteer opportunities.
- **If you are not sure of who to ask, always feel free to contact a DVM Ambassador!**
dvmadmissions@colostate.edu