



LMU
College of Veterinary Medicine
LINCOLN MEMORIAL UNIVERSITY

DeBusk Veterinary Teaching Center

POLICIES & PROCEDURES HANDBOOK

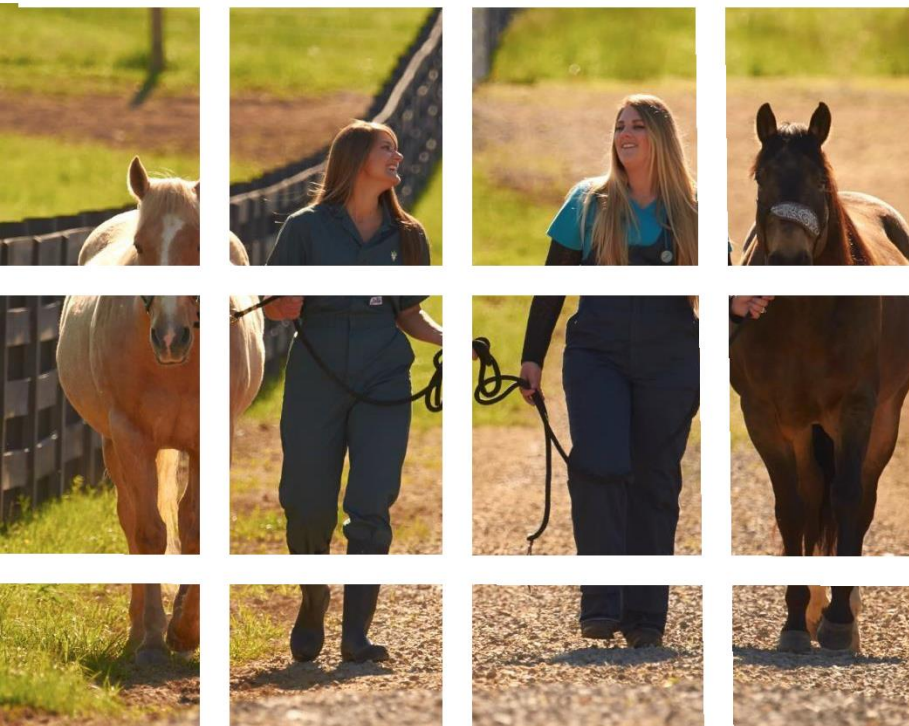


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The DeBusk Veterinary Teaching Center (DVTC) is considered to be part of the LMU campus. The additional information is provided given the unique functions provided onsite.

Welcome

Acronyms and Abbreviations

BTC	Bovine Teaching Center
CVM	College of Veterinary Medicine
DVTC	DeBusk Veterinary Teaching Center
ES	Equine Stables
ETC	Equine Teaching Center
SDS	Safety Data Sheets
PPE	Personal Protective Equipment
SACSC	Small Animal Clinical Skills Center
SC	Veterinary Student Center
VS	Veterinary Skills Center
VET	Veterinary Education and Technology Building

Phone Directory

Bovine Teaching Center	(423) 869- 6785
Equine Teaching Center	(423) 869- 6786
SACSC Lobby	(423) 869- 6535
SACSC- Kennel Prep	(423) 869- 7422
SACSC- Pharmacy	(423) 869- 7421
SC – Clinical Research Space	(423) 869- 6780
SC - Clinical Research Space	(423) 869- 6782
Veterinary Skills Center	(423) 869- 6784
Security	Desk: (423) 869- 6090 Cell: (865) 585- 2048

DVTC Campus Wide Policies

Photography

Photography or any use of recording devices (e.g., film or digital cameras, camera phones, sound recorder) is **strictly prohibited** in animal use areas, unless specifically approved in writing by the LMU IACUC and the Institutional Officer

Exceptions:

1. *When performed by government inspectors (e.g., USDA Veterinary Medical Officer).*
2. *When required by personnel authorized by the Institutional Officer to assist in clinical diagnosis of disease.*
3. *When the Institutional Officer has requested to document conditions of the animal facilities.*

Dress Code and Professional Conduct

General Lab Dress Code Guidelines

Non-slip, closed-toe shoes or boots are required for all labs. Closed toe shoes should cover the entire foot.

Exposed jewelry, which may present a snag risk or impediment to hygiene should be removed for all labs where live animals are present and for all surgical skills labs.

Students must refer to individual course syllabi for other specific dress code information. All individual course syllabi will meet minimum dress code requirements, but may actually require a more prescriptive attire.

Students should observe the LMU-CVM Student Handbook's guidelines on professional clothing.

Dress Code Designated per Building

In addition to adhering to general dress code policies as described in the LMU-CVM Student Handbook, please observe the following guidelines for each building at the DVTC.

Veterinary Student Center:

- Students who are transiting the VSC while going to or coming from labs located on the DVTC campus are permitted to wear clean attire specific to those labs. Scrubs and coveralls that have been worn around live animals or cadaver tissue should not be worn in areas where human food is stored or consumed.
- Upon return from laboratories, shoes/boots must be free of feces and/or other organic material prior to entering the building.

Veterinary Skills Center:

- When working with any specimens including but not limited to cadaver tissue, students are to wear a buttoned lab coat with either scrubs OR professional clothing. Non-slip, fully enclosed, closed-toe shoes are required.
- Students will follow all guidelines listed under *Laboratory Safety and Personal Protective Equipment (PPE)* in the course syllabus.

Equine Stables:

- When animals are present, students are to wear coveralls and non-slip rubber boots OR clean, professional clothing and appropriate closed-toed shoes that fully cover the foot.
- Boots/shoes should be clean when entering labs and cleaned at the end of each lab if soiled.
- When animals are not present, students are to wear clean, professional clothing and closed-toe shoes.
- The Equine Stables are not climate controlled. Be prepared for weather changes that can occur at any time.
- Students entering the stables while participating in a course or clinical skills laboratory will follow all guidelines listed in the course syllabus or posted on the course's online resource page (e.g. Canvas) with regard to clothing, *safety, and Personal Protective Equipment (PPE)*.

Equine Teaching Center:

- When animals are present, students are to wear coveralls and non-slip rubber boots OR clean, professional clothing and boots.
- Boots/shoes should be clean when entering labs and cleaned at the end of each lab if soiled.
- When animals are not present, students are to wear clean, professional clothing and closed-toe shoes.
- Students entering the ETC while participating in a course or clinical skills laboratory will follow all guidelines listed in the course syllabus or posted on the course's online resource page (e.g. Canvas) with regard to clothing, *safety, and Personal Protective Equipment (PPE)*.

Bovine Teaching Center:

- When animals are present, students are to wear coveralls and rubber boots. Boots should be clean when entering lab and must be cleaned at the end of each lab.
- When animals are not present, students are to wear clean, professional clothing and closed-toe shoes.
- Students entering the BTC while participating in a course or clinical skills laboratory will follow all guidelines listed in the course syllabus or posted on the course's online resource page (e.g. Canvas) with regard to clothing, *safety, and Personal Protective Equipment (PPE)*.

Small Animal Clinical Skills Center:

For Lecture:

- Students are to wear clothing that meets Student Handbook guidelines.

For Lab:

- In all labs, students are to wear either scrubs or professional attire. Additionally, students are to wear a buttoned lab coat and closed-toe shoes.
- Students entering the SACSC while participating in a course or clinical skills laboratory will follow all guidelines listed in the course syllabus or posted on the course's online resource page (e.g. Canvas) with regard to clothing, *safety, and Personal Protective Equipment (PPE)*.

If students are uncertain about what clothing to wear to lab, they are encouraged to adhere to more stringent guidelines (e.g. scrubs with a lab coat). Scrubs and coveralls that have been worn around live animals or cadaver tissue should not be worn in areas where human food is stored or consumed.

For Surgery:

- Clean, washable (not leather), closed-toed shoes will be worn in surgery. Students will enter the building in their street shoes, then change into their clean shoes. After completing surgery, students will change back into street shoes before leaving the building.
- Surgical scrubs (Only Green in color) will be worn in the OR by students, and will be worn in the Procedures room under a lab coat. Lab coats will be buttoned over scrubs at all times. Students will change into scrubs inside of the building and change out of them before leaving. If it is necessary to

walk between buildings at the DVTC, scrubs may be worn under a lab coat, but street shoes will be worn (remove clean shoes before walking in the parking lot).

Veterinary Education and Technology Building:

For Lecture:

- Students are to wear clothing that meets Student Handbook guidelines.

For Lab:

- In all labs, students are to wear either scrubs or professional attire. Additionally, students are to wear a buttoned lab coat and closed-toe shoes.
- Students entering the SACSC while participating in a course or clinical skills laboratory will follow all guidelines listed in the course syllabus or posted on the course's online resource page (e.g. Canvas) with regard to clothing, *safety, and Personal Protective Equipment (PPE)*.

If students are uncertain about what clothing to wear to lab, they are encouraged to adhere to more stringent guidelines (e.g. scrubs with a lab coat). Scrubs and coveralls that have been worn around live animals or cadaver tissue should not be worn in areas where human food is stored or consumed.

For Surgery:

- Clean, washable (not leather), closed-toed shoes will be worn in surgery. Students will enter the building in their street shoes, then change into their clean shoes. After completing surgery, students will change back into street shoes before leaving the building.
- Surgical scrubs (Only Green in color) will be worn in the OR by students, and will be worn in the Procedures room under a lab coat. Lab coats will be buttoned over scrubs at all times. Students will change into scrubs inside of the building and change out of them before leaving. If it is necessary to

walk between buildings at the DVTC, scrubs may be worn under a lab coat, but street shoes will be worn (remove clean shoes before walking in the parking lot).

Transportation and Parking

The DVTC is LMU property and follows all parking and transportation regulations set forth by LMU.

Emergency and Evacuation Procedures

Fire Evacuation Plan

Staff

In an instance of an evacuation order, students, faculty and staff will:

1. systematically clear their floor,
2. exit to the RALLY POINT, and
3. check in with on-site Administrator and the University Police/Security.

The RALLY POINT for the Veterinary Student Center and Veterinary Skills Center is the grassy area directly across parking lot on the south side of the buildings.

The RALLY POINT for the Small Animal Clinical Skills Center is the grassy area at the west end of the parking lot.

The RALLY POINT for the Bovine Teaching Center and Equine teaching Center and Equine Stable is the grassy area to the East of the Small Animal Clinical Skills Center.

The RALLY POINT for the Veterinary Education and Technology is the center grass island in front of the VET building parking lot facing Highway 58.

Every room must be checked, in a systematic manner, as we want NO ONE left behind. **Evacuees are NOT to get in cars and leave as vehicle traffic will interfere with emergency vehicles.**

Drills are intended to be a minimal disruption. The more time it takes to sweep the building, the longer the disruption. In event that a test or quiz is being given at the time of an event, flexibility to create an alternative may be necessary. In the event of a drill, all is to be dropped immediately and every one must leave the building, even in the middle of a test or quiz.

In laboratories, students and faculty should pull electrical cords and shut off gas immediately in their immediate vicinity and exit. Designated personnel will shut off the oxygen lines to the Small Animal Clinical Skills building.

Patient safety is always a critical issue. In the event that a patient in the SA Clinical Skills Center is under anesthesia or recovering from anesthesia/surgery, the primary clinician will be informed of the fire drill prior to sounding the alarm, and an appropriate alternative course of action will be prescribed.

Tornado Emergency Plan

Please see LMU Community Standards for details.

Visitor Policy

Campus tours must be scheduled in advance through the Office of Admissions or the DVTC Site Coordinator. Unannounced visitor may be turned away or referred to the Harrogate Campus at any time.

All campus visitors are required to check in with the receptionist, in the lobby of the Small Animal Clinical Skills Center.

For safety and security reasons, visitors are not permitted in the Veterinary Skills, Bovine or Equine Teaching Centers, or Small Animal Clinical Skills buildings unless on an officially guided tour. Visitors are not permitted to handle, take pictures, or come in contact with the animals at the DVTC. Visitors are permitted in the Student Center as long as they have checked-in with the receptionist in the Small Animal Clinical Skills Center. All exceptions must be approved by and scheduled with the CVM and visitors must be accompanied by LMU-CVM personnel.

Locker Policy

All lockers within the College of Veterinary Medicine are the property of the College of Veterinary Medicine and are subject to applicable University and College policies. LMU reserves the right to alter policies governing the use of lockers with appropriate notice.

The Lincoln Memorial University-College of Veterinary Medicine reserves the right to search any locker, upon reasonable suspicion, for prohibited or illegally possessed substances or objects, in instances where locker procedures are being abused, or in the case of an emergency situation.

Students are only allowed to use the locker assigned to them at the beginning of school year. It is the student's responsibility to keep their assigned locker clean and in good condition. Students should not write or mark in or on the locker. Students are not permitted to affix items to the interior or exterior of their lockers. Students must report any problems to the LMU-CVM. Students may be assessed a repair charge for any damage that they cause to the locker.

Students should not store valuables in their lockers. LMU-CVM cannot be held responsible for lost, stolen, or damaged property.

Lockers must be cleaned out at the end of the school year, if a student is taking a leave of absence or withdrawing from the program, or if a student is no longer taking classes at the DVTC. For any locker not cleaned out, the locker lock will be cut and contents of the locker disposed of. LMU-CVM will not be held responsible for items, including the lock, left behind by the student.

Comment Box

Students have the opportunity to offer suggestions, comments, and complaints, anonymously if they wish, regarding compliance of the college with the Standards of Accreditation. The comment boxes are located in the Student Lounge areas of the Veterinary Student Center and the Small Animal Clinical Skills Building.

Facilities

Room Reservations

Please contact the DVTC Site Coordinator to facilitate reservations of rooms at the DVTC. Please provide one-week notice for all facilities requests.

Reservations are based on a first come first serve basis. LMU-CVM reserves the right to make changes to requests as needed.

The following is a list of rooms allowed for reservation.

- Veterinary Student Center Room 100 (Classroom; seats 56; food and drinks are allowed, no open containers, AV/TV with laptop hook-up)
- Veterinary Student Center Room 109 (Student Break Room; food and drinks are allowed)
- Veterinary Student Center Room 111 (Conference Room; seats 10; food and drinks are allowed, no open containers)
- Veterinary Student Center Room 121 (Student Lounge; food and drinks are allowed)
- Veterinary Skills Center 100 (Teaching Laboratory; food and drinks are prohibited)
- Equine Teaching Center 103 (Conference Room; seats 16; food and drinks are prohibited)
- Bovine Teaching Center 103 (Conference Room; seats 16; food and drinks are prohibited)
- Small Animal Clinical Skills Center 140 (Classroom; seats 150; food and drinks are allowed)
- Small Animal Clinical Skills Center 144 (Conference Room; seats 16; food and drinks are allowed)
- Small Animal Clinical Skills Center 149 (Student Lounge; seats 30; food and drinks are allowed)

Study rooms reservation policy can be found on the Student Affairs Canvas organization page.

Health and Safety

Biosecurity Measures

The LMU-CVM Animal Infectious Disease Control Plan and Biosecurity Procedures are intended to address contagious disease threats as they are encountered in this institution and to reduce the risk of nosocomial and zoonotic illness.

The document summarizes the plans and procedures to be used in the prevention and control of infectious diseases at LMU-CVM and the DVTC, and provides official policies regarding control of infectious diseases. All personnel working in for LMU-CVM at the DVTC will be trained and will follow all procedures and policies listed in the document. It is the responsibility of all DVTC Personnel (including students and volunteers) to recognize infectious disease risks at the DVTC, and to correct or report breaches in infection control procedures. Specific questions concerning the Animal Infectious Disease Control Plan and Biosecurity Procedures document LMU-CVM Biosecurity Committee. The document will be reviewed at least annually and modified as needed; updates will be posted on the LMU-CVM Web Page. The Animal Infectious Disease Control Plan and Biosecurity Procedures document is currently located with SOPs under the LMU IACUC documents. It may be accessed as follows:

- Log on to MyLMU
- Under "My Team Sites"; click 'College of Veterinary Medicine.'
- Under "IACUC"; click 'LMU Standard Operating Procedures.'

The LMU-CVM Animal Infectious Disease Control Plan and Biosecurity Procedures will be reviewed at least annually and as part of new employee training.

Personal Protective Actions and Equipment

Hand hygiene: Wash hands before and after each patient encounter and after contact with feces, body fluids, vomitus, exudates, or articles contaminated by these substances. Wash hands before eating, drinking, or smoking; after using the toilet; after cleaning animal cages or animal-care areas; and whenever hands are visibly soiled. Alcohol-based rubs may be used if hands are not visibly soiled, but hand washing with soap and running water is preferred. Keep fingernails short. Do not wear artificial nails or hand jewelry when handling animals. Keep hand- washing supplies stocked at all times.

Correct hand washing procedure:

- Wet hands with running water
- Place soap in palms
- Rub hands together to make a lather
- Scrub hands thoroughly for 20 seconds
- Rinse soap off hands
- Dry hands with disposable towel

- Turn off faucet using the disposable towel to avoid hand contact

Correct use of hand rubs:

- Place alcohol-based hand rub in palms
- Apply to all surfaces of hands
- Rub hands together until dry

Use of gloves and sleeves: Gloves are not necessary when examining or handling healthy animals. Wear gloves or sleeves when touching feces, body fluids, vomitus, exudates, and non- intact skin. Wear gloves for dentistry, resuscitations, necropsies, and obstetrical procedures; when cleaning cages, litter boxes, and contaminated environmental surfaces and equipment; when handling dirty laundry; when handling diagnostic specimens (e.g., urine, feces, aspirates, or swabs); and when handling an animal with a suspected infectious disease. Change gloves between examination of individual animals or animal groups (e.g., a litter of puppies) and between dirty and clean procedures performed on the same patient. Gloves should be removed promptly and disposed of after use. Disposable gloves should not be washed and reused. Hands should be washed immediately after glove removal.

Facial protection: Wear facial protection whenever splashes or sprays are likely to occur. Use a face shield, or goggles worn with a surgical mask. Wear facial protection for the following procedures: lancing abscesses, flushing wounds, dentistry, nebulization, suctioning, lavage, obstetrical procedures, and necropsies.

Protective outerwear: Wear a protective outer garment such as a lab coat, smock, non-sterile gown, or coveralls when attending animals and when conducting cleaning chores. Outerwear should be changed and laundered daily. These should also be changed whenever soiled, after handling an animal with a known or suspected infectious disease, after working in an isolation room, and after performing a necropsy or other high-risk procedure. Impermeable outerwear should be worn during obstetric procedures and necropsies and whenever substantial splashes or large quantities of body fluids may be encountered. Shoes or boots should have thick soles and closed toes and be impermeable to water and easily cleaned. Disposable shoe covers should be worn when heavy quantities of infectious materials are present or expected. Promptly remove and dispose of shoe covers and booties when leaving contaminated work areas. Clean shoes or boots between farm visits. Keep clean outer garments available at all times.

Animal-related injury prevention: Take precautions to prevent bites and other injuries. Identify aggressive animals and alert clinic staff. Use physical restraints, muzzles, bite-resistant gloves, and sedation or anesthesia in accordance with practice policies. Plan an escape route when handling large animals. Do not rely on owners or untrained staff for animal restraint. Routine incident report procedures will be followed in case an injury occurs.

Protective Actions during Veterinary Procedures

Examination of animals: Wear appropriate protective outerwear, and wash hands before and after examination of individual animals or animal groups (e.g., a litter of puppies). Wear facial protection if a zoonotic respiratory tract disease is suspected. Potentially infectious animals will be examined in a designated examination room and remain there until diagnostic procedures and treatments have been performed.

Injections, venipuncture, and aspiration procedures: Wear gloves while performing venipuncture on animals suspected of having an infectious disease and when performing soft tissue aspirations.

Needlestick injury prevention: Do not bend needles, pass an uncapped needle to another person, or walk around with uncapped needles. Do not remove an uncapped needle from the syringe by hand or place a needle cap in the mouth. Do not recap needles except in instances when required as part of a medical procedure or protocol. Dispose of all sharps in designated containers. After injection of live vaccines or aspiration of body fluids, dispose of used syringes with needles attached in a sharps container. Otherwise, remove the needle by use of forceps or the needle removal device on the sharps container, and throw the syringe away in the trash. Do not transfer sharps from one container to another. Replace sharps containers before they are completely full.

Environmental Infection Control

Isolation of infectious animals: Animals with a contagious or zoonotic disease will be housed in isolation as soon as possible. Clearly mark the room or cage to indicate the patient's status and describe additional precautions. Keep only the equipment needed for the care and treatment of the patient in the isolation room, including dedicated cleaning supplies. Disassemble and thoroughly clean and disinfect any equipment that must be taken out of the room. Discard gloves after use. Leave reusable personal protective equipment (e.g., gown, mask) in the isolation room. Clean and disinfect or discard protective equipment between patients and whenever contaminated by body fluids. Place potentially contaminated materials in a bag before removal from the isolation room. Limit access to the isolation room. Keep a sign-in log of all people having contact with an animal in isolation. Follow current SOP found in binder outside of isolations spaces.

Cleaning and disinfection of equipment and environmental surfaces: Wear gloves when cleaning and disinfecting. Wash hands afterwards. First, clean surfaces and equipment to remove organic matter, and then use a disinfectant according to manufacturer's instructions. Clean and disinfect animal cages, toys, and food and water bowls between uses and whenever visibly soiled. Clean litter boxes once a day. Use the checklist for each area of the facility (e.g., waiting room, examination rooms, treatment area, and kennels) that specifies the frequency of cleaning, disinfection procedures, products to be used, and staff responsible.

Handling laundry: Wear gloves when handling soiled laundry. Wash animal bedding and other laundry with standard laundry detergent and completely machine dry. Use separate storage and transport bins for clean and dirty laundry.

Decontamination and spill response: Immediately spray spills or splashes of body fluids, vomitus, feces, or other potentially infectious substance with disinfectant and contain it with absorbent material (e.g., paper towels, sawdust, or cat litter). Put on gloves and protective outerwear (including shoe covers if the spill is large and may be stepped in) before beginning the clean-up. Pick up the material, seal it in a leak-proof plastic bag, and clean and disinfect the area. Keep clients, patients, and employees away from the spill area until disinfection is completed.

Rodent and vector control: Seal entry portals, eliminate clutter and sources of standing water, keep animal food in closed metal or thick plastic covered containers, and dispose of food waste properly to keep the facility free of rodents, mosquitoes, and other arthropods.

Other environmental controls: There are designated areas for eating, drinking, smoking, application of make-up, and similar activities. These activities should not occur in animal-care areas or in the laboratory. Do not keep food or drink for human consumption in the same refrigerator as food for animals, biologics, or laboratory specimens. Dishes for human use should be washed and stored away from animal-care and animal food preparation areas.

Sharps Management Protocol

Needle sticks can potentially serve as a portal of injury for pathogens and can result in serious injury. It is important that appropriate sharps management is performed to ensure the safety and protection of faculty, staff and students.

1. Sharps Disposal
 - a. All sharps should be disposed of using an approved sharps container. Sharps containers are located in all areas that sharps could be used on live animals or models. If a syringe with a needle attached is used for the aspiration of body fluids or the injection of vaccinations that contain live organisms it should be safely placed in the sharps container in its entirety. In some cases the needle may be separated from the syringe and disposed of using the sharps container. Sharps should not be transferred from one sharps container to another and a sharps container should not be overfilled.
2. Uncapped needles
 - a. An uncapped needle should never be removed from a syringe by hand. If it is necessary to do so forceps may be used. A person should not be walking around others with an uncapped needle and it should not be passed to another person. Needles should never be uncapped by mouth.
3. Recapping needles
 - a. Small Animal
 - i. Recapping needles should be avoided but sometimes may be necessary. If a needle must be recapped a 1-handed scoop technique may be used.

1. Place the cap on a horizontal surface such as an exam table.
 2. Hold the syringe with the attached needle in 1 hand.
 3. Use the needle to scoop up the cap without using the other hand.
 4. Secure the cap by pushing it against a hard surface.
- b. Large Animal
- i. When possible the needle should be recapped using the 1 handed method described above. On occasion a needle may need to be recapped when a flat surface nor a sharps container is available. If this occurs forceps may be used to replace the cap on the needle. Both hands may be used but extreme caution should be taken to prevent injury and the needle and syringe should be kept in a safe place until they can be disposed of properly.

Personal Protective Policies

Equipment

Gloves, goggles, glasses, respirators, hearing protective devices, masks, face shields, eye wash stations, and first aid kits are available and easily accessible throughout the DVTC facilities. LMU keeps a central file of Safety Data Sheets (SDS) online that is accessible anytime on the MyLMU site, under the Menu, Resources, Safety & Facilities Management, Quick Links (on the left), MSDS Online. The SDS list of necessary PPE that is required for any chemical or other product that may be used. Any PPE that appears to be worn or defective should be reported immediately.

Safety glasses and direct vented goggles

Safety glasses and direct vented goggles may be appropriate PPE where mechanical injury is the primary concern. These items do not provide adequate biological protection where there is significant zoonotic disease risk.

Indirect vented Goggles

Indirect vented goggles provide substantial protection from dust, particulates and liquid splashes. Unvented goggles generally fog easily and may be difficult to use effectively. Many brands and styles are available with highly variable costs. Goggles may impact the fit of respirators and vice-versa. If using goggles and respirators together in a strenuous environment, the fit of both products may easily be compromised.

Face shields

Face shields are often used in clinical or laboratory settings for splash protection. Face shields do not provide protection from dust and particulates and are not an effective form of PPE in the typical agricultural setting.

Hearing Conservation

Students of the LMU-CVM will be in contact with loud noises on a daily basis. Areas that could potentially contain loud noises include, but are not limited to, BTC, ETC, VET and SACSC. If a student feels that their hearing is at any time in danger they will be provided with ear plugs. **The canine kennels at the DVTC are designated hearing protection areas. Hearing protection will be worn by all personnel entering these areas when dogs are present.**

Personal Hygiene

Although PPE provides a significant amount of protection, effective personal hygiene such as hand washing should be implemented as a key form of protection against infection and disease transmission. Hand washing should be performed frequently using antiseptic soap and warm water. Gloves should be changed and hands should be sanitized between each patient and/or specimen. Fingernails should be kept short and artificial nails should not be worn.

Hazard warning signs

Signage is in place at the DVTC for the safety of students and employees. Signs are located across the campus and include but are not limited to Wet Floor signs, Biohazards on the VSC cooler and freezer, OSHA labels, and Animal Safety signs.

General Laboratory Safety

Centrifuge

The majority of all centrifuge accidents result from user error. To avoid injury, workers should follow the manufacturer's operating instructions for each make and model of centrifuge that they use.

Follow these steps for the safe operation of centrifuges:

- Ensure that centrifuge bowls and tubes are dry.
- Ensure that the spindle is clean.
- Use matched sets of tubes, buckets and other equipment.
- Always use safety centrifuge cups to contain potential spills and prevent aerosols.
- Inspect tubes or containers for cracks or flaws before using them.
- Avoid overfilling tubes or other containers (e.g., in fixed angle rotors, centrifugal force may drive the solution up the side of the tube or container wall).
- Ensure that the rotor is properly seated on the drive shaft.
- Make sure that tubes or containers are properly balanced in the rotor.
- Only check O-rings on the rotor if you are properly trained.
- Apply vacuum grease in accord with the manufacturer's guidelines.
- Do not exceed the rotor's maximum run speed.
- Close the centrifuge lid during operation.
- Make sure that the centrifuge is operating normally before leaving the area.
- Make sure that the rotor has come to a complete stop before opening the lid.

Compressed Gas in Cylinders

Many industrial and laboratory operations require the use of compressed gases for a variety of different operations.

Compressed gases present a unique hazard. Depending on the particular gas, there is a potential for simultaneous exposure to both mechanical and chemical hazards.

Gases may be:

- Flammable or combustible
- Explosive
- Corrosive
- Poisonous
- Inert
- or a combination of hazards

If the gas is flammable, flash points lower than room temperature, compounded by high rates of diffusion, present a danger of fire or explosion. Additional hazards of reactivity and toxicity of the gas, as well as asphyxiation, can be caused by high concentrations of even "harmless" gases such as nitrogen.

Storage

Gas cylinders must be secured at all times to prevent tipping

Cylinders may be attached to a bench top, individually to the wall, placed in a holding cage, or have a non-tip base attached. Chains or sturdy straps may be used to secure them.

Transportation

The cylinders that contain compressed gases are primarily shipping containers and should not be subjected to rough handling or abuse. Such misuse can seriously weaken the cylinder and render it unfit for further use or transform it into a rocket having sufficient thrust to drive it through masonry walls.

1. To protect the valve during transportation, the cover cap should be screwed on hand tight and remain on until the cylinder is in place and ready for use.
2. Cylinders should never be rolled or dragged.
3. When moving large cylinders, they should be strapped to a properly designed wheeled cart to ensure stability.
4. Only one cylinder should be handled (moved) at a time.

Cryogenic liquids

Cryogenic liquids (*also known as cryogenics*) are gases at normal temperatures and pressures. However, at low temperatures, they are in their liquid state. These liquids are extremely cold and have boiling points less than -150°C (-238°F). Even the vapors and gases released from cryogenic liquids are very cold. They often condense the moisture in air, creating a highly visible fog. Different cryogenics become liquids under different conditions of temperature and pressure, but all have two properties in common; extremely cold and small amounts of liquid can expand into very large volumes of gas. Everyone who works with cryogenic liquids must be aware of their hazards and know how to work safely with them.

Types of Cryogenic Liquids

Each cryogenic liquid has its own specific properties but most cryogenic liquids can be placed into one of three groups:

- Inert Gases: Inert gases do not react chemically to any great extent. They do not burn or support combustion. Examples of this group are nitrogen, helium, neon, argon and krypton.
- Flammable Gases: Some cryogenic liquids produce a gas that can burn in air. The most common examples are hydrogen, methane, carbon monoxide, and liquefied natural gas.
- Oxygen: Many materials considered as non-combustible can burn in the presence of liquid oxygen. Organic materials can react explosively with liquid oxygen. The hazards and handling precautions of liquid oxygen must therefore be considered separately from other cryogenic liquids.

Personal Protective Equipment to be worn

- Be sure to work in a well ventilated area to prevent oxygen deficient atmospheres under 19.5% oxygen.
- Wear safety shoes when handling containers along with long sleeve shirts and trousers without cuffs.
- ALWAYS wear a full face shield and splash resistant safety goggles. Contact lenses should not be worn.
- Wear a lab coat and an apron when dispensing liquid nitrogen.
- Wear insulated or leather gloves when handling liquid nitrogen or large, cold objects.

Handling Cryogenics Liquids

- Never allow any unprotected part of the body to touch non-insulated pipes or vessels which contain cryogenic fluids. Tissue damage that results is similar to frostbite or thermal burns.
- The extremely cold metal will cause flesh to stick fast and tear when one attempts to withdraw from it.
- Use a suitable hand truck for container movement.
- Do not drop, tip, or roll containers on their sides. Do not remove or interchange connections. If user experiences any difficulty operating container valve or with container connections discontinue use and contact supplier. Use the proper connection. DO NOT USE ADAPTERS.
- Many substances become brittle and may shatter when cold, sending pieces of the material flying. Avoid common glass and large, solid plastics.

Storing Cryogenic Liquids

- Store and use with adequate ventilation.
- Do not store in a confined space.
- Cryogenic containers are equipped with pressure relief devices to control internal pressure. Under normal conditions these containers will periodically vent product. Do not plug, remove, or tamper with pressure relief device for this could cause an explosion.
- Containers shall be handled and stored in an upright position.
- Small quantities of liquid nitrogen can be stored in Dewar bottles. Dewar bottles are hollow-walled glass-lined containers which provide excellent insulation.

Hazards of Cryogenic Liquids

- **Extreme Cold Hazard:** Cryogenic liquids and their associated cold vapors and gases can produce effects on the skin similar to a thermal burn. Brief exposures that would not affect skin on the face or hands can damage delicate tissues such as the eyes. Prolonged exposure of the skin or contact with cold surfaces can cause frostbite. The skin appears waxy yellow. There is no initial pain, but there is intense pain when frozen tissue thaws. Unprotected skin can stick to metal that is cooled by cryogenic liquids. The skin can then tear when pulled away. Even non-metallic materials are dangerous to touch at low temperatures. Prolonged breathing of extremely cold air may damage the lungs.
- **Asphyxiation Hazard:** When cryogenic liquids form a gas, the gas is very cold and usually heavier than air. This cold, heavy gas does not disperse very well and can accumulate near the floor. Even if the gas is non-toxic, it displaces air. When there is not enough air or oxygen, asphyxiation and death can occur. Oxygen deficiency is a serious hazard in enclosed or confined spaces. Small amounts of liquid can evaporate into very large volumes of gas.
- **Toxic Hazards:** Each gas can cause specific health effects. Refer to the MSDS for information about the toxic hazards of a particular cryogen.
- **Fire Hazard:** Flammable gases such as hydrogen, methane, carbon monoxide, and liquefied natural gas can burn or explode. Hydrogen is particularly hazardous. It forms flammable mixtures with air over a wide range of concentration. It is also very easily ignited. **Oxygen-Enriched Air:** When transferring liquid nitrogen through uninsulated metal pipes, the air surrounding a cryogen containment system can condense. Nitrogen, which has a lower boiling point than oxygen, will evaporate first. This evaporation can leave an oxygen-enriched condensate on the surface that can increase the flammability or combustibility of materials near the system, creating potentially explosive conditions. Equipment containing cryogenic fluids must be kept clear of combustible materials in order to minimize the fire hazard potential.
- **Liquid Oxygen Hazard:** Liquid oxygen contains 4,000 times more oxygen by volume than normal air. Materials that are usually considered non-combustible (carbon and stainless steels, cast iron, aluminum, zinc, Teflon (PTFE), etc.) may burn in the presence of liquid oxygen. Many organic materials can react explosively, especially if a flammable mixture is produced. Clothing splashed or soaked with liquid oxygen can remain highly flammable for hours.
- **Embrittlement:** Rubber, plastic, and carbon steel are some examples of materials that can become brittle and break with very little stress applied to them. Try to avoid using these materials when working with cryogenic. If these materials are used, perform an inspection before use.

General Use, Maintenance and Care of Equipment

Students may use a selection of the provided equipment but it will be maintained by technicians.

Hazardous Material Definitions

- **Ignitable-** Contains materials that are easily combustible or flammable
- **Corrosive** includes acids and bases or mixtures having a pH less than or equal to 2 or greater than or equal to 12.5, and materials that burn the skin or dissolve metals.
- **Reactive-** Includes materials that are unstable or undergo rapid or violent chemical reaction when exposed to air, water or other material, generate toxic gases or vapors when mixed with water or when exposed to pH conditions between 2 and 12.5 (as in the case with cyanide or sulfide containing materials), forms potentially explosive mixtures with water, are capable of detonation or explosive reaction when heated or subjected to shock.

- **Toxic**- Includes heavy metal compounds such as: arsenic, barium, cadmium, chromium, lead, mercury, silver, selenium, and more.
- **Pathogenic, Carcinogenic, Infectious, and Etiologic agents**- Includes any material that directly cause health problems such as, "a viable microorganism, or its toxin, which causes or may cause disease in humans or animals". Infectious waste includes blood borne pathogens.
- **Sharps**- Defined as any non-contaminated sharp object that can penetrate the skin, including, but not limited to: broken capillary tubes and glass pipettes, blades from power tools, glass microscope slides and cover plates, and hypodermic and non- hypodermic needles.

All information is not included in this handbook. To access more detailed information about different chemicals that may be used at the LMU-DVTC you can access the MSDS online or in the buildings at different designated areas.

Hazardous Waste Disposal

Laboratory waste generated by student learning activities will be disposed in appropriate waste bins once labs are completed and properly cleaned. Expired chemicals will be disposed of properly by trained personnel that are familiar with safety procedures including chemicals both hazardous and non-hazardous.

Storage

Chemicals and other laboratory materials being stored in any building on the DVTC site will be routinely inspected for proper storage and inventory control. Chemicals should be individually assessed to ensure safe storage of multiple items. Proper storage information can be obtained from the Material Safety Data Sheets (MSDS) provided in each building. MSDS information can also be located online however, hard copies are available due to the uncertainty of internet access at all times.

Radiation Safety

Radiology safety procedures must be followed by all students and personnel in diagnostic radiology.

1. X-ray machines are to be used for diagnostic procedures on animals only, no human use.
2. X-ray equipment must be used under the express consent and/or supervision of a faculty or staff member.
3. Pregnant individuals that have declared they are pregnant to the appropriate faculty or staff member should take appropriate exposure risk reduction measures based on consultation with their licensed healthcare providers and legal regulations. Pregnant individuals are encouraged to reach out to the University Title IX office to help manage any specific restrictions made by their health care provider.
4. Individuals under 18 years of age are not permitted to operate or be within the restricted area during the operation or radiation generating equipment.
5. X-ray equipment on site includes a stationary x-ray unit in SA129, a mobile x-ray unit housed in the Equine Teaching Center, and a dental x-ray unit housed in SA129.
6. Restricted areas
 - All areas identified with "Caution X-ray Radiation" signs. Unauthorized personnel must not be present in area during the use of radiation generating equipment. Only personnel (student or faculty/staff) required to take image is allowed in the room where images are being taken.
7. Utilize appropriate personal protective equipment (PPE) for operation and assisting
 - Lead lined apron
 - Lead lined gloves
 - Lead eye glasses
 - Lead lined thyroid protector
8. Avoid primary beam at all times
9. PPE is located in the X-ray viewing room and personal dosimeters (monitoring badges) are located in the hallway outside SA129. PPE and dosimeter badges are also located in the Equine Teaching Center for the mobile unit.
10. Ionizing radiation which is generated when taking and x-ray, can be harmful to your health if precautions are not taken.

11. When operating radiological equipment, users must remain at a minimum of 6 feet away from the primary beam if possible. An exception is the plate holder who must be a minimum of four feet from the primary beam when using the mobile unit.
12. Authorized personnel should share responsibility of animal restraint so the same individual is not always in the area of greatest risk for exposure
 - Consider chemical restraint to minimize need to hold animal during exposure
 - Use mechanical holding devices when possible (sand bags, etc.)
 - Personnel should avoid direct scatter and **not** be in the beam
13. Radiation exposure monitored with personal monitoring badge
 - **Required** for all authorized personnel operating or assisting with radiation generating equipment
 - Worn on collar or near the hip outside of protective clothing (PPE)
 - Reports of exposure level will be provided to individuals yearly
14. Dental X-ray Unit
 - "All stationary, mobile or portable x-ray systems used for veterinary work shall be provided with either a two meter (6.5 feet) high protective barrier for operator protection during exposures, or shall be provided with means to allow the operator to be at least 2.7 meters (nine feet) from the tube housing assembly during exposures."

Animal Policies

Use of Animals at the DVTC

The policy of the Lincoln Memorial University-College of Veterinary Medicine (LMU-CVM) is to safeguard and promote the health and well-being of all animals used in teaching and research activities. LMU-CVM abides by the published standards of care in the *Guide for the Care and Use of Laboratory Animals*, NRC 2011, 8th Edition; the *Animal Welfare Act* as implemented by Title 9, Code of Federal Regulations (CFR) of the US; and the *AVMA Guidelines on Euthanasia* (2020). The care and welfare of all animals used in the veterinary education curriculum, whether for the education of students or for conducting research or testing, is overseen by the LMU [Institutional Animal Care and Use Committee](#) (IACUC). Protocols for any use of animals at CVM must be reviewed and approved by IACUC prior to implementation.

The veterinary education curricula are designed to provide students opportunities to master the technical skills they will need to function as skilled health care professionals, while doing so in a manner that does not harm animals. In the case of surgical techniques, instrument handling, knot tying, gowning and gloving, draping and maintaining sterile surgical fields, are taught in a serial fashion using a combination of inanimate and dynamic models and computer simulations over several semesters in our Clinical & Professional Skills laboratory. The rationale for this preemptive approach is to build student confidence and expertise before they enter a surgical suite for the first time. The capstone surgical exercise for the pre-clinical curriculum is the canine ovariohysterectomy (spay) procedure. Following spay procedures, patients are returned to their owners, whether the owner is a private individual or a shelter facility.

Small animals

In order to reduce risks related to aggressive animals or animals suspected of having an infectious disease, these animals need to be handled with specific precautions. Animals with known or suspected aggressive behavior will be handled in separate examination rooms under faculty or technician supervision and as appropriate using different means of restraint (i.e. muzzle, snare etc.).

Animals with respiratory or gastrointestinal signs or with a history of or exposure to a known infectious agent will either not be admitted (depending on LMU policy) or will immediately be placed in one of the isolation rooms or in a dedicated examination room.

Large animals

Horses

Students must work in pairs to collect horses from the paddocks.

The LMU-CVM maintains a herd of horses used for instruction at the DeBusk Veterinary teaching center. These horses were adopted into the herd following specific guidelines and are maintained on a current vaccination and deworming schedule and tested annually for EIA, as reflected in the medical records system. Physical examinations are performed on a regular basis by LMU-CVM personnel and any horse suspicious of having an infectious disease will be isolated following LMU-CVM isolation protocols.

Horses will be examined either in the equine teaching building in one of the 16 stocks that are available or in the equine teaching barn. Horses known or suspected of having an infectious disease (i.e. respiratory, gastro-intestinal, neurologic) will not be examined as part of student instruction, with the exception of students completing the fourth year Large Animal Clinical Rotation.

Horses known to be difficult to handle will only be handled under direct supervision and using appropriate physical or chemical restraint.

Cattle

The LMU-CVM maintains a herd of cattle used for instruction at the DVTC. These cattle were adopted into the herd following specific guidelines and are maintained on a current vaccination and deworming schedule, reflected in the medical records system. Physical examinations are performed on a regular basis by LMU-CVM personnel and any cattle suspicious of having an infectious disease will be isolated following LMU-CVM isolation protocols.

Cattle will be examined in the bovine teaching building. Cattle known or suspected of having an infectious disease (i.e. respiratory, gastro-intestinal, neurologic) will not be examined as part of regular student instruction, with the exception of students completing the fourth year Large Animal Clinical Rotation.

Examination of animals

Healthy animals

All veterinary personnel and veterinary students need to wash their hands between examinations of individual animals (i.e. dogs, cats, horses, groups of cattle...). Veterinary personnel and veterinary students must wear appropriate clothing during animal examinations.

Animals with potential infectious diseases

These animals will be examined in a dedicated examination room or isolation room. Animals will remain isolated until initial diagnostic procedures and treatments have been performed. The isolation or examination room will remain out of service until proper cleaning and disinfection of the room and all the equipment and material in the room has been performed. Contact with these animals will need to be limited to essential personnel. Personnel will need to follow appropriate personal protective equipment and hygiene protocols to enter and exit isolation rooms.

Patient Care Guidelines

Patient care is a required part of the course work in the Veterinary Medical Technician (VMT) and Doctor of Veterinary Medicine (DVM) programs. As future veterinary professionals it is imperative to develop basic animal husbandry and patient care skills. LMU offers such hands-on experience by assigning students with the responsibility of daily, routine care for animals.

Students will be assigned to care of canine and feline care duty during each semester. In addition, VMT students will be assigned one week of rodent animal care during the semester they are enrolled in the laboratory animal class to gain the necessary experience and essential skills. Each student's assigned duties will be shared with several other students. The learning experience will promote teamwork, leadership, and responsibility within the group. A CVM staff member will set up the initial schedule for animal care teams. All duties will be shared equally among all team members. All duties must be checked off and approved by CVM staff.

DEFINITIONS

- Animal Care Staff - one who oversees care of canine, feline, and laboratory animals, direct point of contact for students on kennel shifts regarding animal care
- LMU VMT Faculty/Staff- all DVMs and LVMTs employed through Lincoln Memorial University
- Aggressive- signs of aggression in dogs/cats include but are not limited to the following: growling, snarling, lunging, snapping, hissing, and/or scratching.
- Sick- a condition that prevents body or mind from working normally
- Injured- harmed, damaged, impaired

OBJECTIVES

- Students work together in a coordinated effort as a team to provide daily husbandry, basic care, and environmental enrichment of animals.
- Practical techniques of animal care will be introduced and practiced with animals housed in the animal care facilities.
- Students provide basic health care for hospitalized/housed animals, in order to gain an understanding for basic animal needs of nutrition, sanitation, grooming, housing, and general care.
- Students become familiar with physical parameters of the normal animal and consequently, will be able to detect abnormal behavior and presenting complaints of animals in an animal care setting.
- Students develop a working knowledge of the importance of detailed record keeping in animal health.

TEAM RESPONSIBILITIES

The health, comfort, and welfare of the animals will be maintained at all times. To this end the student will:

- Complete and sign Patient Care Management Guidelines before scheduled shifts begin
- Work courteously, showing respect and patience with instructors, supervisors, team members, and animals at ALL TIMES.
 - No type of verbal or physical abuse will be tolerated toward animals, each other, or LMU CVM faculty/staff members (see patient neglect policy)
- Provide care to all animals as described in materials housed in Canvas.
- Monitor and evaluate health status and general condition of each animal. Any animal that is sick, injured, or aggressive must be reported to the Animal Care Staff via phone call **and** email before any students leave that kennel shift.
- Report for all scheduled kennel shifts on time (see patient neglect policy)
- Record all required information in an animal's medical record. Details to be provided in Canvas.
- Finish **ALL** records before end of shift.

ABSENCES/SHIFT CHANGES

- If a student is unable to attend a scheduled shift, it is that student's responsibility to find another team member to cover that shift prior to missing.
- If a student is unable to find a replacement or the absence is at the last minute, the student must call and email the Animal Care Staff and, additionally for DVM students, email the Clinical Skills Course Directors.

- Shifts changes are **ONLY** allowed for excused absences (e.g. doctors' appointments, family emergencies, or unforeseen circumstances), and completely up to the discretion of Animal Care Supervisor
- All changes **MUST** be cleared and approved by CVM staff or faculty.

MISCELLANEOUS

- ALWAYS read the patient's chart... NEVER ASSUME
- If you don't know... ASK!
- **ABSOLUTLEY NO PICTURES** are to be taken of any USDA animal, this can lead to dismissal from the program.
- Contact information will be posted on Canvas and in kennel facilities

NEGLECT POLICY

The dismissal and consequences pertaining to the Neglect Charges can be found in the CVM Handbook. These items below constitute what is considered a Level 1, Level 2, and Level 4 neglect.

The CVM uses a total points system to address patient neglect. If a student receives four points in a semester or six points over multiple semesters, the student will be required to meet with the Student Progress Committee. A Level 1 Neglect Charge is equivalent to one point, a Level 2 Neglect Charge is equivalent to two points, a Level 4 Neglect Charge has the equivalent of four points. If a VMT or DVM student performs a level 4 neglect action, the student will be immediately dismissed from the program. Individual courses (e.g. clinical skills) may include patient care expectations in their syllabi that students must also abide by and are held responsible for.

Level 1 Animal Neglect:

- Arriving late to kennel shift and failure to notify Animal Care Supervisor and kennel team at least 30 mins prior to tardy shift
- Failure to:
 - Work cooperatively as a team member
 - Focus on patient during the shift (e.g. on cell phone during shift)
 - approve shift exchange by Animal Care Staff or CVM Faculty
 - complete animal care duties
 - complete all charting (patient and cleaning)
 - incomplete/missing information on charting

Each Level 1 charge will be considered as 1 point towards dismissal. Further details on dismissal process can be found in the VMT student handbook.

Level 2 Animal Neglect:

- Failure to:
 - Provide and ensure proper care and daily needs of an animal. This includes but is not limited to proper medication administration, feeding, ensuring hygiene of kennel facility, enrichment etc.
 - Promptly report a sick, injured or aggressive animal to Animal Care Supervisor
- No call/no show
- Inappropriate use of mechanical restraint (rabies pole, cat grasper, muzzles, etc.)

Each Level 2 charge will be considered as 2 points toward dismissal. Further details on dismissal process can be found in the CVM student handbook.

Level 4 Animal Neglect:

- Abuse, such as physically striking, rough handling, or tormenting a caged animal, in any way or endangering the animal's life

- Fabrication of any aspect of kennel care including medical records

Each Level 4 charge will be considered as 4 points and immediate dismissal from the program. Further details on the dismissal process can be found in the CVM student handbook.

All Animal Neglect violations will be documented in writing. The student will be required to meet with the Animal Care Staff and applicable LMU-CVM Faculty and Staff.

By enrolling in a DVM or VMT program, the student is agreeing to all conditions stated in the Patient Care Guidelines.