



ISU CVM

OVERVIEW

IOWA STATE UNIVERSITY
College of Veterinary Medicine

Contents

CVM Overview.....3

University of Nebraska-Lincoln Professional Program in Veterinary Medicine10

Affiliates.....12

By the Numbers.....14

Lloyd Veterinary Medical Center.....16

Iowa Veterinary Specialties.....23

Veterinary Diagnostic Laboratory.....25

Iowa State University.....28

The Region30



CVM Overview

CVM Overview



MISSION

Develop the next generation of veterinarians and scientists, **Discover** solutions to important animal and human health questions, and **Deliver** innovative services to the people of Iowa, the U.S. and the world.



VISION

The Iowa State University College of Veterinary Medicine aspires to be a preeminent institution recognized for excellence in professional and graduate education and the application of knowledge to promote animal and human health, while providing a caring and supportive educational and work environment where all can succeed.

HOW WE OPERATE

- Uphold an inclusive, respectful and collegial community.
- Cultivate partnerships and collaborations that support research, education and service.
- Support innovation and entrepreneurship.
- Provide proactive thought leadership on animal and human health challenges and opportunities.
- Encourage grassroots efforts.
- Be stewards of finite resources.
- Strive for excellence.



HISTORY

Iowa State's Veterinary School was officially founded in 1879. It was designated as the first state veterinary college in the United States and the first veterinary college in the West. At that time, veterinarians were being trained in private institutions and without consistent standards of academic content. Iowa State has the longest record of continuous operation in the United States — a note of distinction the school continues to hold today.



RECENT RENOVATIONS

In 2020, the **Veterinary Field Services** building was remodeled and expanded to accommodate a growing demand for food animal clinical services in the region. The building which houses the field services unit is a 11,000 gross square foot structure. The facility accommodates a classroom/rounds room, a simulation laboratory, a wet laboratory space to support clinical and research activities, offices, locker rooms and supply storage, as well as nine garage bays to house the veterinary trucks.



Large Animal Hospital

In early 2024, Phase 1 of a new stand-alone facility for the **Veterinary Diagnostic Laboratory** became operational. Phase 2 construction begins in spring of 2024. The new building site is located just south of the existing laboratory. It incorporates critical biosafety and biocontainment features. It also provides additional space to serve current and future diagnostic needs for veterinarians, livestock and poultry producers and pet owners. The new facility will greatly enhance the state's diagnostic service and discovery capabilities, while continuing to provide educational opportunities to professional and graduate students, scientists, diagnosticians and practitioners.



Hixson-Lied Small Animal Hospital



New Veterinary Diagnostic Laboratory



Veterinary Field Services

POINTS OF PRIDE

EDUCATION

- The college is accredited by the AVMA Council on Education. (Full accreditation April 2018)
- The college consistently produces high pass rates on the North American Veterinary Licensing Examination (NAVLE). The AVMA COE requires an 80% pass rate. ISU CVM pass rates for the past 5 years are: 2019 - 99%, 2020 - 96%, 2021 - 98%, 2022 – 96%, 2023 – 92%.
- Compared to the other U.S. colleges of veterinary medicine, Iowa State ranks 29th in resident and 22nd in non-resident total cost of education.
- The college delivers pre-eminent, comprehensive programs in companion animal medicine and surgery, equine medicine and surgery as well as comprehensive programs in swine, dairy, beef and small ruminant production animal medicine, and animal welfare.
- The college offers a unique one-year, non-thesis professional master's degree program in biomedical sciences that is designed for pre-professional and industry-bound students.
- Students become 'practice-ready' through hands-on experiences including the Lloyd Veterinary Medical Center, Clinical Skills Laboratory, Swine Medicine Education Center, surgery/critical care and emergency/specialty clinic mentorship programs, international programs and numerous student organizations.
- In the most recent U.S. News and World Report rankings of veterinary colleges, Iowa State ranks 11th overall and 9th among public universities. Iowa State was also ranked 9th in the United States and 16th worldwide by QS in 2023.
- The CVM has initiated a new program, the Production Animal – Veterinary Early Acceptance Program (PA-VEAP). It was designed to recruit and retain undergraduate students interested in production animal medicine. Students selected for the program, are ensured admission to the CVM following successful completion of the program's requirements.



SERVICE AND OUTREACH

- The **Lloyd Veterinary Medical Center** is a state-of-the-art teaching hospital that is fully accredited by the American Animal Hospital Association and treats over 25,000 cases annually. The Veterinary Emergency and Critical Care Society has identified the hospital as a Level II facility.
- The **Veterinary Diagnostic Laboratory** is Iowa's only fully accredited, full-service veterinary laboratory. It processes >120,000 cases and performs more than 1.6 million tests annually, and was first to identify, diagnose and sequence and fully characterize Porcine Epidemic Diarrhea (PEDv) in the U.S. The VDL is the largest food animal diagnostic lab in the US.
- The **Swine Medicine Education Center** is the only place in the country focused on Swine Medicine with a commitment to teach, live and/or digitally, every clinical technique in swine medicine practice or research and providing students a place to practice those techniques safely. Founded in 2010, the center has a growing library of 139 training resources that have been used to teach students from 97 countries and 32 veterinary colleges. They provide approximately 57,933 student contact hours of teaching annually and have a robust applied research team that collaborates with the veterinary care for approximately half of the pigs in the United States.
- The **Center for Food Security and Public Health** is an international resource of information on diseases and emergency response. It delivers training modules for the USDA's National Veterinary Accreditation Program and the Emerging and Exotic Diseases of Animals course that is used by all U.S. colleges of veterinary medicine and by veterinarians seeking accreditation.
- The **Institute for International Cooperation in Animal Biologics** is a World Organization for Animal Health (WOIE) Collaborating Center that has trained more than 3,450 people from 98 countries in veterinary biologics since 1996.
- The **ISU Pet Cancer Clinic** is a regional center of excellence, enhancing care for pets and facilitating growth in clinical research through medical, surgical and radiation oncology.

RESEARCH

- College researchers have played key roles in developing vaccines and controlling and eradicating animal and human diseases.
- Currently, college researchers are playing key roles in efforts to control infectious diseases such as PEDv, BSE, campylobacteriosis, and HIV, and parasitic, neurologic and prion diseases, using genome-wide approaches to better understand the epidemiology of infectious disease.
- Researchers are developing new diagnostic tools, delivery methods for medications, and new interventions that improve food safety and security.
- One-third of the human-health related NIH proposals being submitted by ISU to NIH come from the College of Veterinary Medicine.
- The college is a leader among U.S. veterinary colleges in USDA research funds expenditures. Overall total research expenditures for the college in FY19 was \$24.7 million.
- The **National Institute for Antimicrobial Resistance Research and Education**, located at ISU and directed by one of our faculty, addresses one of the most pressing public health concerns facing the world.



ACADEMIC DEPARTMENTS

BIOMEDICAL SCIENCES (BMS)

The primary purpose of the Department of Biomedical Sciences is to conduct globally recognized research in basic and translational biomedical sciences relevant to human and animal health, and to provide a superior educational experience to undergraduate, graduate and veterinary medicine students in the disciplines of anatomy, physiology, pharmacology, cell biology and neuroscience. The department is on a continuous path to improvement in learning and discovery that leads to knowledge in the biomedical sciences and supports the mission of the college and university.

VETERINARY CLINICAL SCIENCES (VCS)

The VCS department is responsible for much of the clinical teaching that occurs in the Doctor of Veterinary Medicine (DVM) professional-degree program. It houses the Lloyd Veterinary Medical Center, the only tertiary veterinary medical center providing unmatched expertise and services in a 250-mile radius. It also provides advanced clinical specialty and graduate training through its residency programs, leading to board certification in American Veterinary Medical Association (AVMA)-recognized veterinary specialties and research training at the master's degree level.

VETERINARY DIAGNOSTIC AND PRODUCTION ANIMAL MEDICINE (VDPAM)

VDPAM faculty serve animal agriculture through teaching the pre-eminent program in food supply veterinary medicine; providing full-service, high-quality diagnostic services; leading research initiatives in food-animal infectious diseases, welfare, food-safety, food-safety policy and risk assessment; extension of knowledge to practitioners, producers and the public; and integrating the best research evidence with quality clinical expertise and producer expectations to establish best practices in animal protein production.

VETERINARY MICROBIOLOGY AND PREVENTIVE MEDICINE (VMPPM)

The highly productive faculty of VMPPM provide training in public health, infectious diseases and immunology to professional DVM and graduate students. Research programs of the VMPPM faculty have a focus in mucosal biology, infectious diseases, public health, food-safety, zoonotic diseases and vaccinology. The department has a vibrant graduate program leading to both MS and PhD degrees. There is faculty expertise in the areas of virulence mechanisms of pathogens at mucosal surfaces, including those related to foodborne illnesses. VMPPM also has strengths related to host innate and adaptive immunity against microbial pathogens, including select agents (e.g., plague, brucellosis, anthrax). Faculty are involved campus-wide in basic molecular biology as well as developmental aspects of diagnostic and epidemiological studies of infectious agents.

VETERINARY PATHOLOGY (VPTH)

The department addresses research, clinical needs, and education in anatomic pathology, clinical pathology and parasitology. VPTH faculty link basic and clinical science through essential roles in learning for students (undergraduate, veterinary and graduate) and veterinarians; diagnosis and reporting of diseases; and scientific research, including infectious and emerging diseases, parasitic diseases of local and global impact, animal models and diseases of high consequence to animal and human health through integrated education, diagnostics and research. In addition, VPTH provides pathology and parasitology services throughout Iowa State University and elsewhere. The department offers robust residency training programs for the American College of Veterinary Pathologists and for the American College of Veterinary Microbiology—parasitology certification exams. The residency training programs are combined with a graduate program featuring teaching exposure, with the opportunity to gain a teaching certificate.

CENTERS, INSTITUTES, AND INITIATIVES

The **CFSPH** was established with funding from the Centers for Disease Control and Prevention. The CFSPH was designated as a World Organization for Animal Health (WOAH) Collaborating Centre for Day-One Veterinary Competencies and Continuing Education in 2016. The CFSPH provides: 1) accurate information on transboundary animal diseases and zoonotic diseases; 2) online education for veterinary students and animal health professionals; 3) tools for infection control; 4) resources for local, state, and federal agencies to prepare for animal emergencies; and 5) website technical fact sheets, annotated images, and PowerPoint presentations on important diseases for use by veterinary, medical and public health professionals, and resources for the general public. The Institute for International Cooperation in Animal Biologics (IICAB) works to improve the availability, safety, efficacy and use of veterinary biologics (vaccines and diagnostics) throughout the world. Veterinary biologics are a cost-effective method to prevent animal disease, to increase the efficiency of food production, and to increase the availability of high-quality protein for humans.



The **Institute for International Cooperation in Animal Biologics (IICAB)** works to improve the availability, safety, efficacy and use of veterinary biologics (vaccines and diagnostics) throughout the world. Veterinary biologics are a cost-effective method to prevent animal disease, to increase the efficiency of food production, and to increase the availability of high-quality protein for humans.

The **One Health** program embraces translational medicine in research, outreach, and learning. The College of Veterinary Medicine has been significantly engaged in the university-wide research effort including ISU's High-Impact Hire Initiatives, which hired new college faculty researching infectious diseases; developing more animal models for human diseases; and using Big Data analysis. These faculty complement existing research programs in platelet disorders, cancer, medical device development, comparative ophthalmology, neuroscience, vaccine and immunotherapy, and gastrointestinal and respiratory diseases, that benefit animal and human health. These areas support the future focus of the University healthy lives research theme that seeks to position ISU as one of the best universities in the world that provides transformative science-based solutions to pursuing a healthy lifestyle by recognizing the interdependencies of human, animal, and plant health.



The **Swine Medicine Education Center** is the only place in the country focused on Swine Medicine with a commitment to teach, live and/or digitally, every clinical technique in swine medicine practice or research and providing students a place to practice those techniques safely. Founded in 2010, the center has a growing library of 139 training resources that have been used to teach students from 97 countries and 32 veterinary colleges. They provide approximately 57,933 student contact hours of teaching annually and have a robust applied research team that collaborates with the veterinary care for approximately half of the pigs in the United States.



The **Infectious Disease** program focuses on infectious diseases that affect both animal and human health. Topics cover bacterial, viral, and parasitic infections including pathogenesis, diagnostics, innate and adaptive immunity, vaccine development, and host-microbe interactions.

The **Food Safety and Antimicrobial Resistance** program has faculty in the basic and applied research of foodborne pathogens, such as *E. coli*, *Salmonella*, and *Campylobacter*, including epidemiology, transmission, and ecology; fundamental biology and colonization mechanisms; and development of intervention strategies. CVM also has a research focus on antimicrobial resistance (AMR), which covers mechanisms of AMR; persistence, transmission and evolution of AMR; systems approach to understanding AMR; and development of innovative interventions for AMR. Additionally, CVM leads a university-wide initiative on National Institute of Antimicrobial Resistance Research & Education, which promotes collaboration in addressing AMR-related challenges.



The **Animal Health and Welfare** program includes infectious and non-infectious diseases/factors impacting multiple animal species, including swine, cattle, sheep, and poultry. Research areas include diagnosis, prevention, treatment, and management of animal diseases; epidemiology and risk analysis; and pain management and animal welfare.

CHAIRS & PROFESSORSHIPS INITIATIVE

The College of Veterinary Medicine is the home of several prestigious and uniquely named faculty positions including nine chairs and ten professorships. All have a long-term impact on the excellence of the education and patient care in the college. These positions have multiple





ISU-UNL Professional Program in Veterinary Medicine

ISU-UNL Professional Program in Veterinary Medicine

The Iowa State University and University of Nebraska-Lincoln (UNL) Professional Program in Veterinary Medicine is a cooperative agreement between the states of Nebraska and Iowa. Nebraska residents apply for admission using the Iowa application process, and students selected by the Nebraska admissions committee will attend two years of professional veterinary school at UNL before transferring to Iowa State. Students who complete the four-year program will receive a DVM degree from Iowa State. The cooperative agreement graduated its first class in 2011.



UNIVERSITY OF
Nebraska
Lincoln



Affiliates

Affiliates

Iowa Veterinary Specialties, located in Des Moines, Iowa, is a 24/7 emergency and specialty hospital providing service in cooperation with Iowa State's Lloyd Veterinary Medical Center with additional educational experiences for all ISU veterinary students.

The **Great Plains Veterinary Education Center** (Nebraska) provides education to veterinary students and practitioners through a cooperative agreement between Iowa State University College of Veterinary Medicine, the University of Nebraska and the U.S. Meat Animal Research Center. The teaching program is primarily in food animal health and production management of beef cattle.



Iowa Veterinary Specialties



By the Numbers

By the Numbers

Here are some of the highlights of how the College of Veterinary Medicine appeared in the 2023-2024 Institutional Data Report of the 31 US-accredited veterinary colleges. The listing is compiled by the American Association of Veterinary Medical Colleges (AAVMC).

STUDENTS

- **Total Enrollment:**
4th highest
- **2020 MS, PhD Graduates:**
8th highest



TOTAL 4-YEAR COST OF EDUCATION*

- **Resident Total Cost of Education (Total 4 Years):**
\$187,490
- **Non-Resident Total Cost of Education (Total 4 Years):**
\$310,554 **includes tuition/fees and estimated cost of living in Ames*



FY23 RESEARCH FUNDING EXPENDITURES

- **USDA Expenditures:**
1st highest
- **NIH/HHS Expenditures:**
21st highest



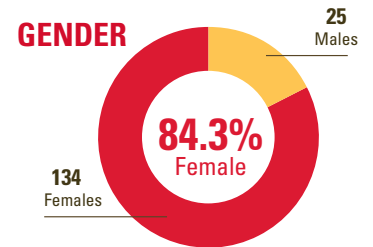
FAST FACTS

- D.V.M. Students: 635
- Graduate Students: 165
- Living D.V.M. Alumni: 6,739
- Faculty: 152 (79 board-certified specialists)
- Degrees Awarded: D.V.M., M.S., Ph.D.
- Our alumni serve in all 50 U.S. states and 12 countries
- > 68 percent (2020) of Iowa's practicing licensed veterinarians are graduates of the college



Source: AAVMC Institutional Data Report 2023-2024

CLASS 2027 PROFILE



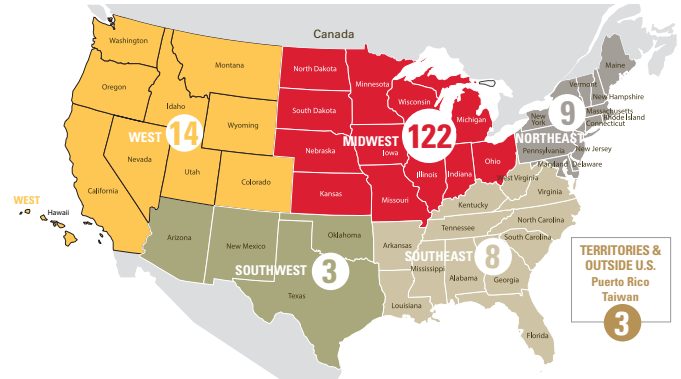
AGE
Mean: 24 years
Range: 20-49 years

DEGREES
No Degree: 15
Bachelor's: 138
Master's: 6

GPA
Science GPA Mean: 3.60
Last 45 GPA Mean: 3.73

RACE/ETHNICITY
Asian: 6
Black: 3
Foreign Nationals: 1
Latin/Hispanic: 7
Multiracial: 4
Unknown: 1
White/Caucasian: 138

HOME REGIONS



Source: Office of Academic and Student Affairs

CVM PLACES HIGH IN LATEST QS WORLD RANKINGS

The College of Veterinary Medicine has been ranked among the world's best veterinary schools by a British organization's 2022 ratings.

Quacquarelli Symonds (QS) measures academic and employer reputations and the number of times faculty research papers have been cited by other researchers.

In 2022, the College of Veterinary Medicine was ranked 29th overall in the world rankings and ninth among U.S. veterinary schools.



Lloyd Veterinary Medical Center

Lloyd Veterinary Medical Center



The Lloyd Veterinary Medical Center at Iowa State University is committed to improving animal health and well-being and providing exceptional veterinary care for pets and livestock.

The LVMC provides advanced, specialized medical care and 24/7 emergency services. Our healthcare team of board-certified clinicians, technicians, residents/interns and students work together to combine their clinical expertise along with current medical science to provide patient-focus veterinary care.

SMALL ANIMAL SERVICES

The Hixson-Lied Small Animal Hospital is one of the most advanced animal care facilities in the world. Our multiple services cover the spectrum of veterinary care, from routine vaccinations to cutting-edge surgeries. Our specialty service units are led by board-certified veterinarians who are world-renowned in their fields.

PRIMARY CARE



The small animal **Primary Care** service provides full-service primary care to dogs and cats in the Ames and surrounding communities and is located in the Lloyd Veterinary Medical Center at the Iowa State University Hixson-Lied Small Animal Hospital. Our team cares about providing quality, comprehensive wellness, illness, and preventive medicine to our canine and feline patients. Services include physical exam-

inations, vaccinations, parasite prevention, general surgery and dentistry, life-stage and breed specific care, diagnostic testing, and care for chronic conditions.

SPECIALTIES

The **Cardiology** service provides comprehensive medical and interventional cardiology. Our team consists of two board-certified cardiologists, two residents, and one veterinary technician specialist. Services include in-house Holter monitoring service. Full-time clinical cardiology coverage with same day in-house cardiology consultations and 24-hour coverage for emergent cardiology consultations.



IOWA STATE UNIVERSITY Lloyd Veterinary Medical Center

- 58** LVMC faculty positions
- 17** Faculty positions in the Large Animal Hospital & Veterinary Field Services
- 41** Faculty positions in the Small Animal Hospital
- 64** Total veterinary technician positions

The Lloyd Veterinary Medical Center is a VetCOT certified Level 2 trauma center.

The **Emergency and Critical Care** service includes four board-certified criticalists and four clinicians, six residents, one specialty intern, nine rotating interns, and 15 veterinary technicians (not all full-time). Open 24/7, we offer advanced emergency and critical care services including high flow oxygen therapy, mechanical ventilation, and therapeutic plasma exchange. The Hixson-Lied Small Animal Hospital has been named a Veterinary Emergency and Critical Care Society Level II Certified Facility. The Lloyd Veterinary Medical Center is a VetCOT certified Level 2 trauma center.

The **Dentistry** service includes one AVDC board certified veterinary dentist. Our service provides comprehensive dental cleanings and oral assessments which include dental scaling, polishing and dental radiographs. Other services offered through this service include surgical extractions, prosthodontic and orthodontic therapies as well as oral mass biopsies. The dental suite is located within the anesthesia/surgical complex of the hospital.

The **Dermatology** service is staff by three board-certified clinicians, one resident and one veterinary technician. Services include skin testing for allergy, skin biopsy/histopathological evaluation, laser surgery of cutaneous masses and lesions, video-otoscopy and ear cleaning, diagnostics and management of all conditions affecting the skin. We have a large treatment area with exterior windows that provide a well-lit, natural environment to diagnosis and manage skin conditions. The large-screen monitors, and equipment facilitate both in-person and distant education.

The **Small Animal Internal Medicine** service at our veterinary hospital is dedicated to diagnosing and treating pets with complex diseases affecting multiple organ systems. Led by four board-certified specialists and supported by five residents, three veterinary technicians, and one client liaison assistant, our team offers a comprehensive range of diagnostic techniques. From gastroenterology to hematology, endocrinology to urology, our faculty's expertise spans various fields, ensuring thorough and accurate assessments. Whether it's primary cases or referrals, we handle a wide spectrum of medical conditions with a focus on delivering precise diagnoses and effective treatment plans.

The **Oncology** service has three board-certified faculty with expertise in both medical and radiation oncology. In addition, the program currently has two medical oncology residents, a radiation oncology intern, a radiation therapy specialist, and three dedicated veterinary technicians. Within the next year, we will add two additional medical oncology residents and a radiation oncology resident. As the only oncology service in Iowa, we provide cancer diagnostics and treatment (chemotherapy, immunotherapy, radiation therapy) to the entire state and surrounding community. Within the next 5 years, we will expand our current footprint to create a pet cancer clinic at the LVMC, enhancing our patient care and our student/house officer learning opportunities.



The **Ophthalmology** service includes three board-certified ophthalmologists, three residents and two veterinary technicians. We provide clinical ophthalmic exams and ocular/periocular surgery for any animal species. Our team specializes in treatment of common ocular diseases such as cataract, glaucoma, corneal ulcers, retinal disease, eyelid issues, dry eye and more. We have the facilities to handle tumors in and around the eye, eyelid surgery, corneal and intraocular surgery in both large and small animals. Over 2,000 patients are seen annually. We work with other clinical services to help determine the best treatment strategies for animals with concurrent ocular needs.



ADVANCED CRITICAL CARE TECHNIQUES AVAILABLE

- Oxygen therapy (traditional and high flow)
- Custom IV fluid therapy
- Nutritional support (enteral and parenteral)
- Advanced critical care monitoring
- Component and whole blood transfusion therapy
- Mechanical ventilation
- Central venous access
- Multimodal analgesia
- Therapeutic plasma exchange

The **Orthopedic Surgery and Neurosurgical** service for small animals is composed of three board-certified surgeons, four surgical residents, and one surgical intern. We have the expertise and equipment to perform a wide variety of orthopedic and neurosurgical treatments, including advanced procedures such as arthroscopy, complex fracture repairs, deformity corrections, arthroplasties, and a variety of spinal surgical procedures. Provided services are available on a scheduled referral basis, via internal case transfer, and, in some cases, on an urgent/emergent basis.

The **Small Animal Theriogenology** service team includes two board-certified theriogenologists, two veterinary technicians, and one intern. We offer comprehensive reproductive care for dogs and cats as well as neonatal management for both puppies and kittens. Routine services include semen collection for evaluation, shipment, and cryopreservation and breeding management with fresh, shipped cooled, or frozen semen via vaginal and transcervical insemination. We also offer evaluation and management of reproductive pathology including mismating, pyometra, postpartum disease, prostatic disease, reproductive structural abnormalities, and male infertility. Routine and emergency services are available for routine whelping, dystocia, and elective cesarean sections.

The **Soft Tissue Surgery** service for small animals includes two board-certified surgeons, four surgical residents, and one surgical intern. We have the expertise and equipment to perform treatment for a wide array of soft tissue surgical conditions. Advanced procedures such as oncologic and reconstruction procedures, laparoscopy, thoracoscopy, and interventional radiology procedures are commonly performed. The service works in close partnership with many other services in the hospital, including Internal Medicine, Oncology, and Emergency & Critical Care, as well as the referring community. Provided services are available on a scheduled referral basis, via internal case transfer, and, in some cases, on an urgent/emergent basis.

ANESTHESIA/SURGERY SUITE

- 16,600 square foot
- Induction room with 10-patient capacity
- Separate rooms for quiet and trauma induction
- Five surgical operating rooms
 - > 650+ square-feet each
 - > Trumpf LED lights
 - > HD cameras in lights, live streaming broadcasts
 - > Seamless epoxy floors
 - > HEPA filtration system
- One cardiac catheterization lab
- Recovery room
- Centrally located technician station
- Telemetry, Doppler echocardiography, ECG
- Dental suite with two wet-lab tables & radiography
- Endoscopy room
- Minor surgery & minor procedures rooms
- Locker rooms

CLINICAL TRIALS CENTER

The Clinical Trials Service conducts over 20 research studies a year. Studies include basic science, translational and clinical trial research. Our staff veterinarian coordinates active studies, and liaisons with pet owners, referring veterinarians and sponsors.

The **Clinical Skills Laboratory**, located in the small animal hospital, is open to all DVM students 24/7 to improve their competency in clinical and technical skills. Students can perform physical examinations, surgical and anesthetic procedures, catheter placement and venipuncture on models and simulators. Some of the features available to students include:

- An equine head/neck simulator provides students with vascular access to practice blood draws from the jugular vein and facial sinus. There is also a similar alpaca head and neck model.
- Canine forelimb vascular access simulators allow students to practice IV catheter placement and venipuncture of the cephalic vein.
- Students can practice suture placement and various suture patterns on simulated skin pads.
- Computer simulators have real-time anesthesia simulations requiring correction of patient abnormalities.
- Life-size Holstein dystocia simulator with a fully articulated, 70-pound calf.
- Full-size equine palpation/colic simulator to allow for equine rectal palpation and abdominocentesis.
- Bovine theriogenology model with palpable reproductive tracts.
- Swine euthanasia models.
- Canine spay simulators.



The **Canine Rehabilitation** service offers additional physical rehabilitation for patients who have orthopedic or neurologic injuries, as well as many other conditions. Our rehabilitation service offers pool and underwater treadmill as well as a variety of land-based therapies. Other modalities include laser, ultrasound, neuromuscular electrical stimulation and acupuncture. The service is overseen by a board-certified clinician (Neurology) and staffed with two credentialed veterinary technicians.



LARGE ANIMAL SERVICES

FARM ANIMALS

Our team of board-certified large animal specialists (internal medicine, reproduction, surgery and critical care) and technicians offer medical and surgical care and diagnostics to a variety of species including cattle, sheep, alpacas, llamas, goats. Services range from neonatal medicine to complete workup of complicated medical cases that have not been responsive to conventional therapies. Other services offered include assisted calvings, dystocia, AI, breeding soundness exams, and infertility issues.

The hospital has a dedicated large-animal treatment area that includes stalls for cattle, small ruminants, and camelids. The treatment area also includes specialized equipment including a hydraulic tilt table system and climate-controlled room for standing surgical procedures.



EQUINE

The **Equine Medicine** service offers outpatient examination and inpatient treatment of disorders including adult and neonatal of the gastrointestinal, cardiac, respiratory, hepatic, renal, neurologic, endocrine, oncologic, and dermatologic systems, including poor performance. Our team includes five board-certified internal medicine specialists, two residents and five interns. Our service offers depth of expertise in equine internal medicine and collaborates with other specialists throughout our medical center to integrate broad input into patient management and care.

The **Equine Intensive Care** Unit has nine stalls in a climate-controlled environment. The ICU is used to house horses that require continuous monitoring, continuous IV fluids, or specific and intensive care. Horses housed in the ICU are cared for by a healthcare team under constant video surveillance. In addition, the ICU has a stall that is used for horses with neurologic conditions. This stall is extra-large and has padded walls. A 2-ton hoist is available to assist horses that are weak, to their feet. The Equine Intensive Care unit is also a state-of-the-art isolation facility.



Neonatal and Pediatric Care is provided by the equine medicine team with services ranging from early pregnancy to parturition (delivery) through the neonatal period to weanling age.

The **Equine Surgery** service provides soft tissue and orthopedic surgery, lameness and performance evaluation, rehabilitation, imaging and diagnostics. Our team includes four board-certified clinicians, three residents, five interns, and three veterinary technicians. Our facilities include three surgery rooms and a standing surgery room, and four padded induction/recovery stalls. Our performance evaluation facility allows in-hand or ridden evaluation of horses. We have established relationships with the local racetrack and many equine breeding operations.



The **Equine Theriogenology** team has two board-certified theriogenologists, two veterinary technicians, and one intern. We offer comprehensive reproductive care for both mares and stallions. Routine mare services include breeding management with fresh, shipped cooled, or frozen semen, pregnancy diagnosis and monitoring, management of twin pregnancies or other high-risk pregnancies, embryo collection and transfer, foaling services for both routine and high-risk mares and management for postpartum disorders. Additionally we offer full breeding soundness evaluation and diagnosis and management of reproductive pathology such as uterine infections, uterine cysts, or ovarian or uterine tumors. We are excited to offer stallion services beginning in the spring of 2021, including routine semen collections for evaluation, shipment, and cryopreservation,

breeding soundness examination, and evaluation of male-related reproductive disorders. Gamete recovery services include oocyte collection and epididymal semen harvesting.

Lameness Evaluations are provided. The LVMC has state-of-the-art capabilities to diagnose even the trickiest of performance issues. Lameness evaluations are conducted on a case-by-case basis and can include regional nerve blocks and/or joint blocks to help localize the region causing lameness.

The LVMC has a **Farrier** service staffed with two certified journeyman farriers who are able to make virtually all of the surgical shoes to aid in the treatment of most all therapeutic applications, including Heartbar shoes, Patten bar shoes, Navicular shoes.



MOBILE VETERINARY CARE

The **Equine Field Service** section provides ambulatory care to local and regional horse-clients along with 24-hour emergency care to equine patients and is staffed by three equine veterinarians. The Field Service provides a full complement of preventative care along with advanced diagnostics (portable digital radiography, ultrasonography) along with the ability to seamlessly refer more complicated medical conditions to the Lloyd Veterinary Medical Center.

The **Veterinary Field Services** has five fully equipped mobile veterinary trucks and eight clinicians and four house officers to provide individual animal and herd health services for beef, dairy, swine, sheep, goats, and camelids (alpacas and llamas) in the local area. They also provide services to the university farms: Dairy, Beef Teaching, Swine Teaching, Beef Nutrition, Swine Breeding, and Sheep.



LVMC SUPPORT SERVICES

The **Anesthesiology** service manages most of the patients that are anesthetized at the LVMC. The LVMC is one of the few hospitals in Iowa with board-certified anesthesiologists and dedicated anesthesia technicians.



The **Diagnostic Imaging** service offers diagnostic radiography, computed tomography, magnetic resonance imaging, dynamic fluoroscopy, and small animal abdominal ultrasound. Diagnostic radiography for small and large animals, CT and MRI studies are currently evaluated through tele-imaging services. A dedicated medical sonographer working with tele-imaging services is used to evaluate many small animal abdominal ultrasound patients. Nuclear medicine services are currently limited to feline hyperthyroidism cases and equine bone scans. Services are provided by a board-certified radiologist and six radiologic technologists.

The **Pharmacy** is staffed by three licensed pharmacists and full-time pharmacy technicians. The pharmacy offers a wide variety of pharmaceutical products and services to both large and small animals of numerous species as well as many different exotic animal species. The pharmacy is available for public inpatient and outpatient use to fill both commercially available medications as well as produce in-house compounded medications and prescriptions by one of the Lloyd Veterinary Medical Center's in-house clinicians.



The pharmacy is also available to referring veterinarians to prescribe compounded medication products for their clients. The pharmacy also provides prescription mailing services for in-house and referring veterinary clinician clients.

Our **Animal Blood Bank** was established in 1998. Donor dogs and cats are owned by students and staff at Iowa State, and local community members. The blood bank is directed by a clinical pathologist and a criticalist, and coordinated by a veterinary technician. The blood products are only used for our patients and other pets in the community.

Our **Medical Records** office is staffed by two registered health information technicians. They maintain thousands of medical records for the patients of the Lloyd Veterinary Medical Center, ensuring continuity of care with the proper and accurate completion of each record.



Iowa Veterinary Specialties



IOWA
VETERINARY
SPECIALTIES

iowaveterinaryspecialties.com

IOWA STATE UNIVERSITY
College of Veterinary Medicine

23
vetmed.iastate.edu

Iowa Veterinary Specialties



Iowa Veterinary Specialties, located in Des Moines, Iowa, is a 24/7 emergency and specialty hospital providing service in cooperation with Iowa State's Lloyd Veterinary Medical Center. IVS is accredited by the American Animal Hospital Association.

IVS, an ISU CVM affiliate hospital, offers additional educational experiences and summer mentorships for ISU veterinary students and an annual continuing education program for practitioners.

IVS has a total of 67 staff, including an Interim Medical Director, a technician supervisor, six full-time emergency veterinarians, two part-time emergency veterinarian, seven relief emergency doctors, and two part-time board-certified surgeons. Support staff includes 3 specialty veterinary technicians, 27 emergency veterinary technicians, 11 customer service representatives and 6 administrative staff members.

Diagnostic Imaging

Digital X-ray
Computed Tomography (CT) 64-slice

Laboratory

We have a full-service, in-house laboratory to run a number of diagnostic tests.

Pharmacy

Upon discharge, we can provide you with most of the prescriptions that your pet will need for its recovery.

Canine Blood Bank of Central

Iowa IVS has a blood bank that serves veterinarians in the surrounding area with canine blood and blood components to treat ill and injured dogs. IVS manages the program and its volunteer canine donors.

IVS has recently completed a 9,190 square foot addition to include five offices, one conference room, nine additional exam rooms, two additional procedures rooms, two added surgery suites, a central service sterilization area, a second ward, radiology suite to include CT. The original facility underwent a remodel to include the addition of a student computer lab, four Snyder Oxygen cages, a second isolation suite and 29 additional kennels.



A VARIETY OF SERVICES ARE AVAILABLE:

- 24/7 Emergency care
- Exotics
- Surgery: Soft-tissue and orthopedic

SUPPORT SERVICES INCLUDE:

- Acupuncture
- Integrative medicine
- Hospice/Palliative care



iowaveterinaryspecialties.com



ISU Veterinary Diagnostic Laboratory

IOWA STATE UNIVERSITY
Veterinary Diagnostic Laboratory

vetmed.iastate.edu/vdl

IOWA STATE UNIVERSITY
College of Veterinary Medicine

25
vetmed.iastate.edu

ISU Veterinary Diagnostic Laboratory

Science-Based, Industry-Focused, Client-Centered



Iowa State is distinguished for having one of the nation's few comprehensive veterinary diagnostic laboratories that encompasses the full range of specialty areas including pathology, bacteriology, virology, molecular diagnostics, serology, toxicology and areas of emerging importance such as clinical pharmacology and next generation sequencing.

Located on the Veterinary Medicine campus, the VDL has approximately 30 faculty, more than 155 technical staff and many students. Processing more than 120,000 cases each year and conducting more than 1.6 million tests annually, the lab plays a key role in advancing Iowa's \$32.5 billion animal agriculture industry. The lab also provides diagnostic services for companion animals, performance animals, and wildlife.

The VDL has led the nation in protecting animal and human health since its inception in 1947. The VDL has developed a reputation for being a leader in the diagnosis and response to emerging diseases. The VDL was the first to identify the outbreak of porcine epidemic diarrhea virus and develop same-day testing for the disease. The ISU VDL played a major role during the 2015 and 2022 epidemic of highly pathogenic avian influenza in the Midwest. In 2020, the VDL initiated the Public Health Testing Service to assist with COVID-19.

In early 2024, Phase 1 of a new stand-alone facility for the VDL became operational. Phase 2 construction begins in spring of 2024. The new building site is located just south of the existing laboratory. It incorporates

critical biosafety and biocontainment features. It also provides additional space to serve current and future diagnostic needs for veterinarians, livestock and poultry producers and pet owners. The new facility will greatly enhance the state's diagnostic service and discovery capabilities, while continuing to provide educational opportunities to professional and graduate students, scientists, diagnosticians and practitioners.



AT A GLANCE

- **120,000+** cases annually
- **1.6 million+** tests performed annually
- Fully accredited
- Rapid testing
- Client web portal (smartphone friendly)
- Drive through drop off

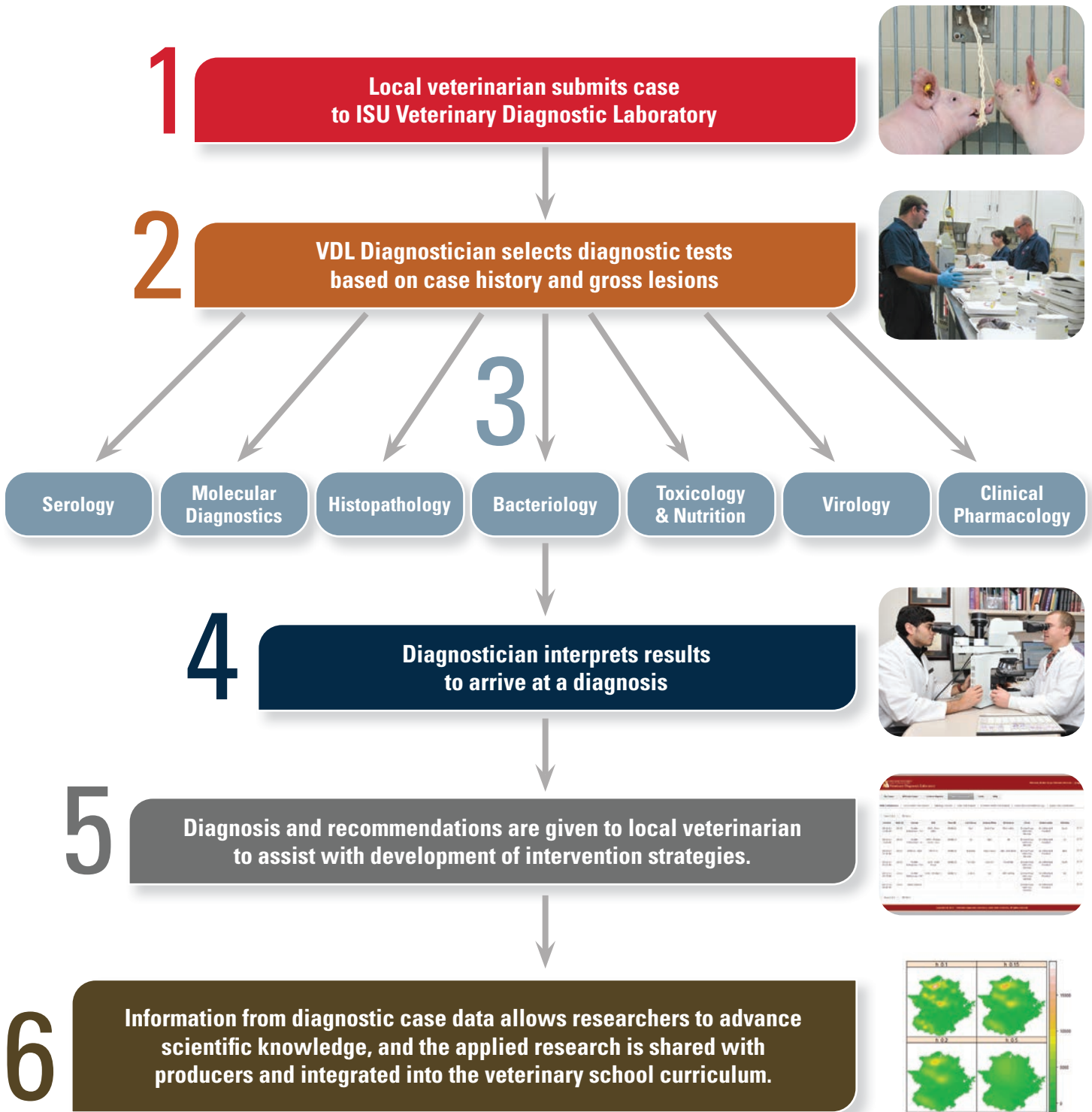
PUBLIC HEALTH TESTING SERVICES

- Established in June 2020
- CLIA-certified
- COVID-19 PCR and serology testing
- Collaborative effort:
 - > State Hygienic Laboratory at University of Iowa
 - > Iowa Department of Public Health

IOWA STATE UNIVERSITY
Veterinary Diagnostic Laboratory

vetmed.iastate.edu/vdl

Veterinary Diagnostic Laboratory Operational Flowchart





Iowa State University

Iowa State University



Iowa State University is a public, land-grant university, where students get a great academic start in learning communities and stay active in 800-plus student organizations, undergraduate research, internships and study abroad. They learn from world-class scholars who are tackling some of the world's biggest challenges – feeding the hungry, finding alternative fuels and advancing manufacturing.



ABOUT IOWA STATE

- **Location:** Ames, Iowa
- **Founded:** 1858 (first class: 1869)
- **Enrollment:** 33,391 (Fall 2019, excludes postdocs)
- **Academics:** 10 schools and colleges, 100 majors
- **President:** Wendy Wintersteen
- **Mission:** Create, share and apply knowledge to make Iowa and the world a better place.
- **Athletics:** Cyclones, Big 12 Conference
- **Famous Alumni:** George Washington Carver, Carrie Chapman Catt, John Vincent Atanasoff, Frederick Douglass Patterson





THE REGION

The Region

AMES, IOWA

Beneath the small town charm of Ames, Iowa, beats the heart of a much larger city. A city that has become a player in developing the world's bio-economic future. A city with top-quality education, from kindergarten to grad school. A city that regularly draws well-known bands, as well as emerging superstars, international symphonies and Broadway musicals. A city with hundreds of acres of parks, 35 miles of bike trails, and cultural festivals and celebrations. A city that's been ranked the 2nd most livable small city in the nation.



HOW AMES RANKS

Best College Town Rankings

- No. 1: Wall Street, 2020
- No. 3: Business Insider, 2016
- No. 1: Livability.com, 2014
- No. 5: Best College Reviews, 2017
- No. 2: American institute for Economic Research, 2013-2014

2020 US News and World Report Iowa High School Rankings

- Ames High School - #13
- Gilbert High School - #9

Other Rankings

- 3rd Healthiest City in America, 24/7 Wall Street, 2016
- Among the Top 25 "Smartest College Towns," The Daily Beast, 2011
- 8th Among Best Places (Small Cities) to live in, Money, 2014
- Top 15 cities for people who hate long commutes, U.S. News & World Report, 2009
- U.S. City with the Lowest Unemployment Rate (2.2%), Forbes, 2016
- Ranked No. 7 on the list of The Happiest Small Places in America, Movoto, 2014
- 64th Best Small and Mid-Size American City (20,000 to 1,000,000), Livability.com, 2021
- 10 Best College Towns in America, The Discoverer Blog, 2023

Additional Ames Awards:

cityofames.org/about-ames/awards-accolades-achievements



Reiman Gardens



SURROUNDING AREA

While Ames is a vibrant community on its own, the community and Iowa State University is in a hub of several major Midwestern cities.

DES MOINES, IOWA

Des Moines is located 30 minutes south of Ames and is Iowa's largest city and serves as the state capital. With a metro population of 569,633, Des Moines is a bustling metropolis that is a great place to live, work and play. No matter the season, experience the best things Greater Des Moines has to offer with exciting attractions, activities and events all year.

Des Moines Rankings:
catchdesmoines.com/media/des-moines-rankings/

OMAHA, NEBRASKA

Just 2 ½ hours west of Ames, Omaha is Nebraska's largest city and the anchor of the adjacent metropolitan area with just over 1 million people. Omaha is home to the Henry Doorly Zoo and Aquarium, which is consistently ranked among the top zoos in the nation, and the annual College World Series.

MINNEAPOLIS/ST. PAUL, MINNESOTA

Located three hours north of Ames, the "Twin Cities" is known for its parks and lakes. Minneapolis is the home of many cultural landmarks and major league sports teams in baseball, basketball, football and hockey. St. Paul is the state capital and sits across the Mississippi River from Minneapolis.

KANSAS CITY, MISSOURI

Just a little more than three hours south of Ames on I-35 is Kansas City. The largest city of Missouri, Kansas City is known as the City of Fountains and is the home of the world's first outdoor shopping mall – the iconic Plaza. Each spring, Iowa State basketball fans overtake the city when the Big XII men's basketball tournament is held at Kansas City's Sprint Center.



Des Moines, Iowa



Minneapolis, Minnesota



Kansas City, Missouri