

COLORADO STATE DVM PROGRAM

2015 SELF-STUDY REPORT FOR ACCREDITATION

SITE VISIT

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2015



Colorado State University

COLLEGE OF VETERINARY MEDICINE
AND BIOMEDICAL SCIENCES



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INTRODUCTION – EXECUTIVE SUMMARY

The College of Veterinary Medicine and Biomedical Sciences (CVMBBS) at Colorado State University has educated veterinary students for more than 100 years, and continues to advance a tradition of excellence in teaching, research, and service.

The mission of our College is to “improve the health of animals, people, and the planet through innovative and dedicated teaching, research, outreach, and clinical service. Through our actions, we empower the next generation of leaders to change the world.” We feel strongly that we accomplish our mission, but there is still much to do.

Since Dr. Mark Stetter joined CSU as College dean in 2012, the senior leadership team has embarked on two major initiatives. First, we are building a greater sense of unity and camaraderie across a large, dispersed, and diverse College. Second, we are creating an ambitious and visionary strategic plan. To promote a Collegewide sense of community, we have begun to institutionalize defined shared values: “We act with integrity, and we are trusting and respectful of one another. We create an atmosphere that makes our College the academic community of choice. Our shared values include: accountability, collaboration, team, and transparency.”

We launched strategic planning efforts in 2013, and identified key initiatives through strategic mapping in 2014 (see Executive Summary Appendix 1). Six principal areas were identified as top priorities for 2014 and 2015, all highlighted in green on the strategic map. A task force is working to identify goals, timelines, and metrics for each of these initiatives. The strategic map is reviewed monthly by the College Executive Council to ensure goals and timelines are being met.

The principal strengths of our College include:

- Exceptional faculty and staff with a long history of excellence.
- Very high-caliber students who continue to inspire us and challenge us to be our best.
- Engaged and supportive external constituents including alumni, CSU faculty outside the College, and industry and government partners.
- Large and growing caseload in all areas of service including the James L. Voss Veterinary Teaching Hospital (VTH), Robert H. and Mary G. Flint Animal Cancer Center (ACC), Veterinary Diagnostic Laboratories (VDL), and Bud and Jo Adams Equine Reproduction Laboratory (ERL).
- World-class research programs that include a diverse array of concentrations in animal, human, and environmental health.
- Highly productive partnerships between faculty and the advancement team, which has provided tremendous growth in philanthropic support.
- A creative and visionary culture that supports new ideas and innovative programs.

The primary challenges facing CVMBBS include:

- Financial support from the state. The state of Colorado supplies only 10.7% of the University’s operating budget. In general, facility upgrades and new construction are not supported by state resources.
- Student debt-to-income ratio. This is a national concern and one that we are working hard to address.
- College programs are dispersed over three campus locations in Fort Collins. The Main Campus provides the bulk of teaching for first- and second-year DVM students and includes our pathology, microbiology, anatomy, physiology, molecular and radiological sciences, and environmental health buildings. The South Campus provides the



bulk of teaching facilities for our third- and fourth-year DVM students and includes the VTH, VDL, and ACC. At the Foothills Campus, our facilities include the ERL, Animal Reproduction and Biotechnology Laboratory, and Research Innovation Center buildings.

- Aging facilities. In line with our commitment to DVM students, resource allocations are made appropriately in our designated teaching facilities. Classrooms, student lounges, and study spaces have been remodeled; still, our aged research facilities are in need of enhancements.

In concert with national needs within the profession and through our strategic planning efforts, we have launched numerous College initiatives. Two are of particular note. The first is an enhancement of DVM student services with a focus on student wellness, financial literacy, and career placement. The goal is to ensure that our DVM students are exposed to a robust set of services to promote success during their time at CSU, as they enter the workforce, and as they develop their careers. The second involves One Health. CVMBS is leading a major University venture to bring together all eight of CSU's colleges and three schools, plus government and industry partners, to address global challenges in human and animal health, food safety/security, sustainable agriculture, and ecosystem health.



ACRONYMS

AAEP – American Association of Equine Practitioners
AAHA – American Animal Hospital Association
AAVMC – Association of American Veterinary Medical Colleges
ACC – Robert H. and Mary G. Flint Animal Cancer Center
AIDL – Arthropod-borne and Infectious Diseases Laboratory
ARBL – Animal Reproduction and Biotechnology Laboratory
ARDEC – Animal Research, Development, and Education Center
ART – assisted reproductive technologies
AVMA – American Veterinary Medical Association
AZ – Anatomy/Zoology
BMS – Biomedical Sciences
CADET – Committee for Assessment and Development of Effective Teaching
CS – Department of Clinical Sciences
CSU – Colorado State University
CVMA – Colorado Veterinary Medical Association
CVMBS – College of Veterinary Medicine and Biomedical Sciences
DMC – Diagnostic Medicine Center (facility that houses Veterinary Diagnostic Laboratories)
EHS – Environmental Health Services
EORC – Gail Holmes Equine Orthopaedic Research Center
ERHS – Department of Environmental and Radiological Health Sciences
ERL – Bud and Jo Adams Equine Reproduction Laboratory
FAS – Faculty Activity Survey
FAVCIP – Food Animal Veterinary Career Incentive Program
FeLV – feline leukemia virus
FIV – feline immunodeficiency virus
HBHM – healthy baby/healthy mother
HIV – human immunodeficiency virus
IBTT – Institute for Biologic Translational Therapies
IDSC – Infectious Disease Supercluster
LHS – Larimer Humane Society
LMS – Livestock Medicine and Surgery



MCIN – Molecular, Cellular, and Integrative Neurosciences
MIP – Department of Microbiology, Immunology and Pathology
MMI – multiple mini interview
MRL – Mycobacteria Research Laboratories
NAVLE – North American Veterinary Licensing Exam
NIH – National Institutes of Health
OBL – Orthopaedic Bioengineering Laboratory
PD – CSU Police Department
PPE – personal protective equipment
PPI – Personal Potential Index
PRSE – Program of Research and Scholarly Excellence
RIC – Research Innovation Center
ROLE – Ram Outdoor Leadership Experience
SAAT – Senior Administrative Advisory Team
SAST – Saving Animals in Shelters by Teaching
SAVMA – Student American Veterinary Medical Association
SCAVMA – Student Chapter of the American Veterinary Medical Association
SEED – sperm, egg, and early embryo development
SOAP – Subjective, Objective, Assessment, and Plan
SRL – Surgical Research Laboratory
TILT – The Institute for Learning and Teaching
TRM – Translational Reproductive Medicine
UAF – University of Alaska Fairbanks
VAC – Veterinary Admissions Committee
VDI – Veterinary Diagnostic Imaging
VDL – Veterinary Diagnostic Laboratories
VMCAS – Veterinary Medical College Application Service
VTH – James L. Voss Veterinary Teaching Hospital
WICHE – Western Interstate Commission for Higher Education
WVC – Western Veterinary Conference



STANDARD 1:

Organization
12.1.1-12.1.6



Standard 1: ORGANIZATION

12.1.1. Provide a college mission statement for the undergraduate, DVM, or equivalent program.

Vision/Tagline: Helping animals, people, and the planet

Mission: We improve the health of animals, people, and the planet through innovative teaching, research, outreach, and clinical service. Through our actions, we empower the next generation of leaders to change the world.

Values: Transparency, Accountability, Collaboration, and Team

12.1.2. Identify the body that accredits the university and the current status of accreditation.

The Higher Learning Commission, a commission of the North Central Association, accredits Colorado State University. CSU completed the most recent accreditation process in January 2014 and was reaffirmed for accreditation through FY2023-2024. The accreditation report can be found at <http://president.colostate.edu/pdf/final-accreditation-report-hlc-team.pdf>.

12.1.3. Provide a flowchart indicating the position of the college of veterinary medicine in the university structure and show lines of authority and responsibility and give names and titles of principal university administrative officers related to the college.

CSU is part of the CSU System, led by a chancellor and governed by the CSU System Board of Governors. The board consists of 15 members, nine of whom are voting members appointed by the governor of Colorado. The other six are nonvoting members and include faculty members and student leaders representing CSU, CSU-Pueblo, and CSU-Global Campus. The president of CSU, Dr. Tony Frank, serves as chief executive officer of the University. An executive team that includes the executive vice president and provost, Dr. Rick Miranda, vice presidents, and the deputy general counsel supports the president in carrying out the University's mission.

The College of Veterinary Medicine and Biomedical Sciences is one of eight colleges within the University. The dean of the College reports to the executive vice president and provost who, in turn, reports to the president. See Appendix 1.3.

12.1.4. Provide a flowchart of the organizational design of the college, listing names (deans, associate/assistant deans, directors, department heads, etc.), academic credentials, and assignments of college administrators.

The dean of the College has a Doctor of Veterinary Medicine and is the chief executive officer responsible for overseeing all professional, ethical, and academic affairs of the College. The College is organized into four academic departments: Biomedical Sciences (BMS), Clinical Sciences (CS), Environmental and Radiological Health Sciences (ERHS), and Microbiology, Immunology and Pathology (MIP). It has two primary service units: the James L. Voss Veterinary Teaching Hospital (VTH) and the Veterinary Diagnostic Laboratories (VDL). The College further encompasses the Office of the Dean and has three associate deans who provide programmatic oversight for teaching and research (associate dean for veterinary academic and student affairs, associate dean for academic and student affairs, and associate dean for research). The executive director of operations oversees day-to-day administrative operations of the College. Reporting to the executive director are finance and accounting, information technology services, human resources, environmental health and safety and facilities management, communications, international programs, and business analytics. See Appendix 1.4.

12.1.5. Describe the role of faculty, staff, and students in the governance of the college, and list the major committees of the college and their appointment authority.

Executive Council: Composed of the dean, associate deans (veterinary academic and student affairs, academic and student affairs, and research); department heads (BMS, CS, ERHS, and MIP); directors (VTH, VDL); and executive directors (advancement, operations), the Executive Council is the College's administrative leadership team. It meets twice a month to discuss and implement the strategic vision and associated operational policies that govern the College. See Appendix 1.5.a.



Dean's Advisory Committee: Composed of the dean, associate deans, executive director of operations, and assistant to the dean, the committee meets weekly and is advisory to the dean on administrative functions.

Hospital Board: The Hospital Board is the leadership body for the hospital and is composed of the director, hospital administrator, section chiefs, key faculty, and senior staff. The Hospital Board meets monthly and establishes and reviews policies and procedures related to hospital operations and medical practices.

Senior Administrative Advisory Team (SAAT): Under the direction of the executive director of operations and composed of the senior administrative personnel who oversee finance, information technology, human resources, communications, strategic planning, facilities and safety, and business analytics, the SAAT is primarily responsible for establishing administrative procedures that streamline administrative operations within the College. The SAAT is advisory to the Executive Council on policies that improve oversight of administrative operations.

See Appendix 1.5.b for other key committees.

12.1.6. If the college plans to change its current organization, provide a summary of those plans.

In January 2015, CVMBS advertised for a senior director of operations. This new position will be a member of the Executive Council and have oversight for day-to-day operations, including human resources, finances, facilities, and information technology. Currently, these responsibilities report to the executive director of operations. In order to rapidly move forward and implement the numerous major initiatives within our strategic plan, we have decided to split oversight of daily operations from our strategic initiatives.



STANDARD 2:

Finances
12.2.1-12.2.6



Standard 2: FINANCES

12.2.1. Complete Tables A and B for the past five years and analyze the trends for each category.

See Appendix 2.1 for Tables A and B. Tables A1 and B1 show total CVMBS expenses and revenue. Tables A2 and B2 show expenses and revenue for only the DVM Program.

The financial resources of the College of Veterinary Medicine and Biomedical Sciences are adequate to sustain the educational programs and mission of the College. Total revenue has increased 20% over the last five years (FY2010-2014). Stabilization and increases in Colorado State University allocation, coupled with significant increases in revenues from the James L. Voss Veterinary Teaching Hospital (VTH) and the Veterinary Diagnostic Laboratories (VDL), plus development funds, have offset slight declines in sponsored program income and indirect cost recovery.

Total Expenditures (Table A)

Instruction: The largest category of expense in instruction is salaries and benefits. Investment in faculty for instruction has remained fairly constant, in spite of base budget cuts in years 2010, 2011, 2012, and 2013 totaling \$4,256,000. Direct tuition-sharing programs instituted by the University in FY2012 mitigated the reductions.

Academic support: Significant increases in academic support in FY2014 reflect the donation and investment in the new Bud and Jo Adams Equine Reproduction Laboratory (ERL) in excess of \$3 million. Increases in FY2013 and FY2014 reflect remodeling at the VTH of the Critical Care Unit and Pharmacy in excess of \$1 million. Other increases include increased investment in development and communications to support College fundraising efforts.

Student services: Expenditures are for staff salaries for DVM admissions and other DVM student services. Salaries are trending upward as positions are added to support DVM career development and financial advising.

VTH: Expenditures increased more than 36%, reflecting enhanced caseloads and revenue.

VDL: Expenditures increased 16%, reflecting spending required to support a 30% increase in revenue over the same period.

Other educational expenditures: These expenditures are from clinical services and diagnostic centers within the College. Decreased spending in FY2013 reflects the offset of insurance proceeds received for business interruption losses from a fire at the ERL.

Student aid: Sponsored student aid has declined due to decreases in federal funding. Unsponsored student aid has increased from additions to student aid provided from increased donations in support of scholarships.

Sponsored research: Sponsored research funding has been challenging over the last several years due to decreases in federal funding. A key element of our strategic plan aims to increase diversification of our research portfolio and search for new sources of funding opportunity.

Other sponsored activity: This category reflects direct investment in research expenditures through startup packages and internally funded research projects. Expenditures have increased with the creation of funded research initiatives by the University.

Extension and public service: Extension support has decreased 32% over the reporting period. Continuing education programs are growing through development and expanded offerings. New technologies and deliveries are contributing to long-term growth. FY2013 reflects a \$120,000 decline in visiting vet programs.



College revenue (Sources of Funds Table B)

University allocation: Due to the downturn in the economy beginning in 2008, the College experienced permanent base budget cuts in fiscal years 2010, 2011, 2012, and 2013 of \$1.2 million, \$1.4 million, \$1.3 million, and \$356,000 respectively. The University non-DVM tuition-sharing programs added an additional \$1,338,000 in FY2012, \$1,071,000 in FY2013, and \$1,303,000 in FY2014 in one-time funds to College budgets. Beginning in FY2013, the University allocation stabilized as economic conditions in the state improved. In FY2013, \$4 million of base was contributed to the DVM Program as part of the DVM tuition-sharing agreement discussed below. In addition, increased University investments in research and startups contributed to increases in FY2013 and FY2014.

Tuition and fees: Beginning in FY2013, CVMBS gained control of tuition-setting. An agreement was reached whereby the College receives a fixed percentage of DVM tuition including any future increases. This not only stabilized the CVMBS share of DVM tuition, but makes future funds predictable, as tuition increases are determined.

Endowment income: The College's endowment funding has fluctuated over the past five years primarily due to the downturn in the economy and lost interest return. However, the Colorado State University Foundation balance has increased by 43.6% or \$30.6 million (FY11: \$70.1 million; FY15: \$100.7 million), with most of the increase realized in the past two years.

Current gifts: Current gifts demonstrate a substantial increase over the last five years, reflecting the College's increased investment in development and communications.

Sponsored program income/cost recovery: The College has seen a decline in sponsored program revenue of 13% over the last five years. This is a direct result of the decreased federal funding for research. A key element of the College's strategic plan is an effort to diversify funding sources to maintain the research portfolio.

Other activity: Larger increases in FY2013 and FY2014 are a result of increased external support for veterinary residents of \$200,000 and increases in continuing education of \$250,000.

VTH: Revenue shows 46% growth over the last five years. The primary drivers are increases in caseload as a direct result of investments in Emergency Medicine and Critical Care.

VDL: Revenues were bolstered by export testing for cattle to Russia, contributing about \$500,000 in both FY2012 and FY2013, and \$300,000 in FY2014.

Other sources from sales and services: The College has several clinical services and specialty labs. The July 2011 fire at the ERL significantly impacted FY2012 revenue, causing a \$1.2 million decrease. Progress has been made with a \$200,000 recovery in FY2013 and \$100,000 in FY2014. Nevertheless, return to pre-fire revenue levels is not expected due to dynamics in the equine industry.

Reserves and transfers: Reserves and transfers are used to balance funds between years and address spending needs in a particular year.

12.2.2. Comment on the strengths and weaknesses in revenues over the past five years.

Strengths: The CSU administration instituted tuition sharing to help offset budget cuts, stabilizing the DVM funding base, and transferring control of DVM tuition to the College. This change allows the College the flexibility to set annual tuition increases to ensure we remain price competitive in an ever-growing, price-sensitive market. The University provides the College with 77.5% of the annual increase in tuition.



Cash-based services such as the VTH, VDL, ERL, and the Center for Environmental Medicine have seen substantial growth over the past five years. This increase is dramatically different from 2008-2011, when growth was stagnant due to the downturn in the national economy.

Weaknesses: The state economy was challenging after the economic downturn of 2008. Significant budget cuts in 2010, 2011, and 2012 were addressed through a combination of eliminating open positions and decreasing operating spending. Despite these reductions, the College continues to fulfill its core mission in teaching, research, and outreach. The College does not anticipate additional budget cuts in the near term.

CVMBS is concerned about trends in sponsored research. This impacts the faculty research mission and reduces the return on overhead. The College receives 35.25% of total Facilities and Administrative Rates (F&A) revenues generated by College researchers. Current College policy returns 75% of the overhead to the departments and retains 25% in the College.

12.2.3. Provide a comprehensive trend analysis of revenue sources that have supported the professional teaching program over the past five years (graphs or other presentations would be helpful).

Appendix 2.3 shows the five-year trend of revenue changes in the College. Significant state budget reductions impacting the University allocation in 2010, 2011, and 2012 ended after a very small reduction in FY2013. The FY2012 reduction was mitigated with the commencement of the tuition-sharing program. FY2013 reflects the stabilization of the University allocation with the infusion of \$4 million from the University. The trends for tuition are positive and are now under the control of the College. Trends for the VTH and the VDL are positive and projected to be stable moving forward. "All Other" includes endowment income, current-use gifts, service unit and lab receipts, and other reserves and transfers. The "All Other" category has recovered after the endowment losses recognized in FY2012 with sources trending up, primarily due to the increase in giving driven by the College investment in development and communications. Sponsored programs, including indirect cost recovery, have been relatively flat and trending slightly negative. Increased focus on sponsor opportunities through our strategic plan and investment in personnel will attempt to reverse the downward trend.

12.2.4. Describe how revenues over the past five years impacted the college's ability to provide a contemporary professional teaching program and ancillary support services.

Stabilized revenue structure and increasing revenue have provided the College with flexibility to move forward with its vision for the future of the DVM Program. The revised allocation structure from the University, tuition-revenue sharing with the University, and transfer of DVM tuition increase control to the College provided a strong foundation. Reinvestments of revenue and University allocations, combined with external donations, have supported extensive remodels of the VTH. In addition, new hospital offerings, such as Emergency Medicine, have increased caseloads, enhanced the teaching mission, and increased revenues. These increases have allowed the College to invest in the teaching programs by providing new positions to each of the four academic departments. Additionally, the College has adopted a new policy of returning salary derived from open faculty lines to each of the academic departments. These funds are used to bridge teaching and research declines due to the vacated faculty positions.

12.2.5. Compare the percentage of hospital income to total hospital operational costs.

The VTH is subsidized for a portion of its salary and fringe in the amount of \$1.7 million and operating expenses of \$250,000. The balance of salaries, fringe, and operating costs are supported from revenue. Taking these subsidies into consideration, revenues are more than adequate to sustain hospital operations and our teaching mission.

12.2.6. Describe anticipated trends in future revenues and expenditures.

The budget situation in the state of Colorado has stabilized, but significant increases are not anticipated over the next few years. Increases are expected in University allocations to cover salary and benefit increases. Continued revenue increases from tuition sharing, DVM tuition control, cash businesses, and donations will provide funds crucial to the continued growth of the College.

STANDARD 3:

Facilities
12.3.1-12.3.6





Standard 3: FACILITIES

12.3.1. Provide a brief description of the major functions of, or activities that take place in, the facilities used by the college in fulfilling its mission.

The programs of the four academic departments within the College of Veterinary Medicine and Biomedical Sciences are located in 14 buildings on three separate sites (noted as campuses) within the University in Fort Collins. The three campuses are designated as Main, South, and Foothills.

The following describes facilities on each campus directly associated with the DVM Program. See Appendix 3.1.a for CVMBS facility square-footage use. Other CVMBS facilities are described in Appendix 3.1.b.

South Campus

James L. Voss Veterinary Teaching Hospital (VTH): The VTH is one of the primary buildings for our DVM Program. Students gain experiential learning through involvement in daily rounds and client interactions.

Third- and fourth-year students are primarily located in the VTH in order to complete clinical rotations through the established curriculum. The following areas are located at the VTH: reception area, where students interact with clients; Robert H. and Mary G. Flint Animal Cancer Center (ACC); Argus Institute; Pharmacy; small-animal radiology; intervention radiology suite; PET-CT area; large-animal area, including a client conference room, anesthesia stalls, surgery, and radiology; equine barn, with a medicine rounds room and treatment area; soft tissue and orthopaedic surgery aisles; live-stock barn, with classroom and animal labs; equine isolation area; ambulatory truck fleet housing; dentistry and endoscopy areas; linear accelerator; junior surgery and models suites; small-animal isolation area; cardiology; sports medicine and physical therapy; and the E. Myrl Halstead Jensen Center for Emergency Medicine and Critical Care (renovated in 2014).

Diagnostic Medicine Center (DMC): The DMC, opened in 2009, houses the Veterinary Diagnostic Laboratories (VDL) and is new since the previous accreditation evaluation. The DMC contains a sample receiving area and the VDL is divided into clinical laboratory specialties including parasitology, histology, clinical pathology, endocrinology/specialized infectious diseases/therapeutic drug monitoring, chemistry toxicology, microbiology/virology/TSE/avian diagnostics/foreign animal disease. The VDL also diagnoses infectious diseases within a specially segregated Biosafety Level 3 containment lab.

The VDL necropsy service provides diagnostic pathology support for internal and external clients, including the VTH, who have animals that die or are euthanized, and trains veterinary students and pathology residents in diagnostic pathology.

Gail Holmes Equine Orthopaedic Research Center (EORC): The EORC is north of the VDL and is home to Clinical Sciences faculty who are involved in orthopaedic research and sports therapy for horses. DVM students have the opportunity to conduct an elective rotation in this area.

Foothills Campus

Bud and Jo Adams Equine Reproduction Laboratory (ERL): CSU's ERL has educated students and developed leading-edge equine reproduction techniques for more than 45 years. This new facility was opened in 2013.

Main Campus

Pathology Building: This building is the central space where second-year DVM students have their classroom, study area, and computer lab. The building also includes strong research programs in infectious disease and immunology. Several DVM/PhD students work in these labs.



Anatomy/Zoology (AZ) Building: The AZ Building houses the CVMBS Dean's Office, anatomy teaching labs, computer facilities, and classrooms for first-year students. It is also home to the first-year DVM student study area, known as the Cubes, which was renovated in Summer 2014.

12.3.2. Provide an area map that indicates the principal facilities of the college and describe distance and travel time to off-campus facilities.

See Appendix 3.2 for maps (University and the three campuses with buildings identified).

The South Campus is located approximately one mile south of the Main Campus and can be reached in approximately five minutes. The Foothills Campus is located approximately four miles west of the Main Campus; travel time is approximately 15-20 minutes. Off-site facilities involved with or used by the DVM Program for teaching include the Larimer Humane Society in Fort Collins, approximately five miles south of the VTH. Travel time is approximately 20-25 minutes. PetAid is a nonprofit small-animal hospital providing veterinary services for the underserved Denver population and is a popular rotation for our fourth-year students. Housing is provided for students during their rotations, and the site is about 60 miles and an hour's driving distance.

12.3.3. Describe the college's safety plan and facilities management plan including mechanisms documenting compliance.

The safety program of the College follows the guidelines set up by the University's Environmental Health Services (EHS) Department, <http://www.ehs.colostate.edu>.

DVM Program and student safety: We actively embrace a climate of workplace safety. Examples include:

- The infection control program helps ensure compliance with health and safety issues, such as rabies, which includes pre-exposure prophylaxis, bite reporting, management of sharps, and incident-reporting management program
- Comprehensive safety audits
- Annual VDL safety reviews
- External building safety audits by the University's EHS department
- Rigorous attention to risk assessments and personal protective equipment (PPE) training for people who have the identified risk within their employment
- Annual environmental sampling for formalin and formaldehyde in the gross anatomy teaching laboratory

We believe our students are full partners with our safety program and do not presume they know the requirements upon entry into the program. We ensure they participate in safety programs and attempt to instill a culture of safety through their education. We conduct general orientations with the expectation that students are active participants. We have employees at the VTH who are responsible for oversight of safety program implementation (provide materials, give stated expectations for using appropriate methods) and rotation-specific orientations regarding methods and practices.

On individual cases that may represent a safety issue, the safety management team becomes involved and ensures all cases are managed in an appropriate manner. Throughout the clinical experience, we expect our employees to model best practices related to safety.

Security: The security program is overseen by the CSU Police Department (PD). The PD provides guidance on issues including security camera numbers and locations and reviews of areas to ensure appropriate exterior lighting is installed and maintained. The PD provides area surveillance through the camera system and physical patrols.



Proximity (Prox) cards are used to control access to sensitive areas such as hospital hallways and process areas, biocontainment labs, or where sensitive equipment is used and stored. Prox cards also allow access to buildings and student areas on the main campus.

12.3.4. Describe the adequacy of all facilities used by the college (pertains to all facilities used by the college whether on campus or off campus)

The facilities of the College are considered adequate to carry out the academic mission of the DVM Program.

Classroom capacity, setup: Each DVM class has adequate classroom size (140-155 seats), teaching equipment, and wireless access. These classrooms have all been remodeled (seating, lighting, sound systems, projection systems, recording systems) in the last five years.

Student study areas: First-year student areas are located in an area on the first floor of the AZ Building. This area underwent significant renovation during Summer 2014. Upgrades include new study space cabinetry, lighting, windows, computer lab, conference room, wireless system, security cameras, and flat-screen monitors.

The second-year student areas on the first floor of the Pathology Building contain a large multimedia/computer room, several group study rooms, and meeting spaces. The multimedia room contains computers, audiovisual equipment, reference material, and student mailboxes.

The dedicated area for third-year students is on the second floor of the VTH next to their classroom. It is currently undergoing renovation with anticipated completion in Spring 2015. See 12.3.6 for planned improvements.

Labs – teaching, clinical: Our anatomy teaching laboratory is expansive and provides an excellent venue for teaching comparative anatomy. There are computers at each dissection station, and openness provides a line of sight for students to view presentation materials from all areas of the room. The lab utilizes both state-of-the-art 3-D anatomy software in conjunction with a wide variety of standard anatomical models. There is also an adjacent room that functions as a teaching area for students to view radiographs and advanced diagnostic images.

The embalming room for the preparation of anatomical specimens was renovated in 2014. Significant improvements were made to the lighting, drains, and layout. A new embalming table was also installed.

The microscopy teaching laboratory in the Pathology Building consists of 23 dual-headed microscopes, and is supplemented with videomicroscopy capabilities.

VTH: The Pharmacy completed a renovation in 2013, including state-of-the-art controlled substance vaults and a new chemotherapy compounding room.

The Critical Care Unit completed a major renovation in 2013, including an advanced therapies room, a feline-specific ward, and a new rounds room. The room includes a SMART board that significantly improves the teaching experience, allowing all students to view the case, radiographs, and other related materials. As part of this renovation, Emergency Medicine space was doubled in size to include a quiet care area, room for separation of animals, and a designated laboratory area.

A radiology suite has been renovated and now has enhanced capacity for interventional radiology and mobile equipment that increases the ability to incorporate the latest technology into teaching.



The small-animal isolation area was built after the last accreditation and contains a separate exterior entrance. The area includes a nurses' station and anteroom, and ventilation in this space incorporates HEPA filter exhaust.

The large-animal isolation building is separate from the rest of the VTH building. It includes both equine and bovine isolation. The area also includes a nurses' station and anteroom.

Library: The library and its services are considered adequate. Please see full description under Standard 12.5.

Office space: Office space in the College is considered adequate. Improvements are continually being made, and opportunities are always being considered in space planning to increase the number of offices to accommodate employees and gain efficiency within their work environments.

12.3.5. For safety and educational purposes, protocols must be posted in the isolation facilities and the facilities must be used for instruction in isolation procedures (biocontainment).

All isolation facility protocols are included in the biosecurity manual. Procedures for small animals, livestock, and equine are posted in nurses' stations.

The CVMBS Infection Control Program (biosafety) is considered a benchmark program for many veterinary hospitals. We actively conduct research on this topic and use the findings to help inform and update our policies. The program has a Control Committee that meets quarterly and as needed to address specific issues. The committee reviews infection control protocols and receives suggestions from the various services within the College. The program also has a house officer whose clinical duties are dedicated to implementing and refining the program, which uses multiple approaches (lectures, orientation rounds, SOP manuals, disease-specific handouts) to educate students.

Lectures regarding infection control and zoonotic diseases are part of the second-year curriculum. Students are also trained on infection control in clinical rotation orientations at the beginning of the third year. Additional rotation-specific information is provided prior to the start of each experience in the third and fourth years. As specific cases arise, faculty and house officers provide training with regard to hospital infection control, public health, and zoonosis related to those cases.

Throughout the student's education, hospital staff are involved in the teaching and modeling of safety procedures.

The infection control manual is available online at <http://csu-cvmb.colostate.edu/Documents/biosecurity-sop.pdf> and contains specific policies for equine, livestock, and small-animal areas. It also highlights specific diseases of concern, summaries of 36 different zoonotic diseases, and common diseases that may be encountered. The document contains policy and educational materials meant to be a learning resource.

The infection control program has developed numerous tools to easily identify and communicate risks and safety measures. A matrix detailing contagious and zoonotic disease can be found in Appendix 3.5. The program has also taken steps to post specific educational material on various diseases in the rounds rooms.

Additional safety, security, and procedural documents applicable to teaching and service programs can be found at:

- Formalin Testing: <http://csu-cvmb.colostate.edu/Documents/biosecurity-sop.pdf>
- VTH Policy and Procedure Manual: <http://csu-cvmb.colostate.edu/SecureDocuments/vth-procedures.pdf>
- Biosecurity Manual: <http://csu-cvmb.colostate.edu/Documents/biosecurity-sop.pdf>



- Chemotherapy Agents: See “Oncology,” Page 74, VTH Manual:

<http://csu-cvmb.colostate.edu/SecureDocuments/vth-procedures.pdf>

- Radiation Badge Monitoring: See “Radiation Safety Procedures,” Page 50, VTH Manual:

<http://csu-cvmb.colostate.edu/SecureDocuments/vth-procedures.pdf>

Note: Students and new faculty and staff must complete modules 0 and 8 of the University’s Radiation Control Office.

Training Modules: <http://www.ehs.colostate.edu/WRad/Home.aspx>

- Pharmacy Procedures: <http://csu-cvmb.colostate.edu/SecureDocuments/vth-procedures.pdf>

Note: For security reasons, the Pharmacy Procedures manual is restricted to employees and students within the VTH.

12.3.6. Describe current plans for improvement

Administration space: Some of the College operations staff (IT, HR, and communications) will move to a new off-site leased facility in the first quarter of 2015. This will allow the growing DVM services team to be housed in a new Student Success Center within the Lake Street office complex.

VTH: The VTH is continuing progress through renovations. The total proposed VTH service remodel plans will result in a gain of 33,800 square feet.

Institute for Biologic Translational Therapies: The College received a significant donation to construct a new translational medicine research building on the South Campus, envisioned to be approximately 100,000 square feet. It is anticipated that the building will allow some research to move from the existing ACC to allow expansion of VTH clinical space. This facility will house state-of-the-art large- and small-animal surgical suites, advanced imaging, and a large auditorium.

Anatomy Teaching Laboratory expansion: The DVM anatomy area currently shares the space with the human gross anatomy lab. The College has undertaken the initiative to design and construct a new gross anatomy lab and neuroanatomy lab. This initiative will allow upgrades to the existing lab for DVM students, improved ventilation, and greater opportunity for DVM students to participate in open lab time through the dedication of the space.

Equine Veterinary Teaching Hospital: The College has completed a preliminary design for a separate, new Equine Veterinary Teaching Hospital on the South Campus. The addition of this facility will significantly expand the capabilities of equine practice and education of our students. This new facility will allow equine medicine to relocate from current facilities within the VTH and allow for expansion of the large-animal group.



STANDARD 4:

Clinical
Resources
12.4.1-12.4.9



Standard 4: CLINICAL RESOURCES

12.4.1. Complete Tables A, B, and C for the past five years and analyze trends for each species (category).

The number of all-species patient visits to the James L. Voss Veterinary Teaching Hospital (VTH) has increased substantially each year over the past five years, up 32.5% over a five-year period (Appendix 4.1 Table A Part I). This growth likely reflects several factors, including an improving economy; increased emphasis by faculty, staff, and students on client service; and robust marketing of VTH services. On balance, we view the growth in caseload as positive for both DVM student teaching and the financial health of the hospital. We are mindful of the risk that too high a caseload can detract from our teaching mission, but do not think we have reached that threshold. The increasing caseload has shifted clinical teaching in the third and fourth years toward case-based teaching and away from didactic teaching, something that most faculty and students view as positive.

The increase in overall number of patient visits mainly reflects increases in the canine and feline caseloads, up 37.2% and 23.8%, respectively. This growth is driven by the same factors driving overall caseload. The equine caseload has seen up-and-down growth over the past five years, with a net increase of 15.2%. A strong emphasis on improving service to equine clients by our equine leadership team is a key factor in improving caseloads, and we expect this trend to continue as we work toward building a new Equine Veterinary Teaching Hospital. In addition to the VTH equine caseload, the Bud and Jo Adams Equine Reproduction Laboratory (ERL) sees another approximately 500 client-owned horses each year through a clinical service separate from the VTH (315 mares, 40 foals, and 56 stallions in 2014). Livestock (bovine, ovine, porcine, caprine) visits to the VTH have seen modest overall growth at 18.4% over a five-year period, with no major shifts in the caseload among species. The exotic/wildlife caseload has experienced growth of 28%, with a fairly constant and even distribution among mammals, birds, and other exotic species.

The overall number of hospitalized patients increased modestly, up 7.1% over five years (Appendix 4.1 Table A Part II). Most growth in our overall caseload has been in nonhospitalized patients. We attribute this to a strategy to grow our primary care and preventive care outpatient caseload through the small-animal community practice, dentistry, and urgent care services. We view this as positive for clinical teaching as it reflects a shift toward more routine-type patients, which are important for student teaching. On the other hand, the number of hospital-patient days has increased significantly over the last five years, up 33.3% overall. Given that we are not hospitalizing more patients, this reflects an ever-increasing complexity and level of care in our specialty referral caseload. We view this as not only important for our clinical teaching program by exposing students to cutting-edge veterinary medicine, but important to our missions to advance veterinary medical care and clinical research.

Most of our field service calls are bovine or equine (Appendix 4.1 Table B). Bovine field calls are divided between our Dairy Field Service and beef cattle calls by our Livestock Medicine and Surgery (LMS) service. Equine field calls are divided between the Equine Field Service and Equine Sports Medicine Service. Field service calls for both cattle and horses decreased in 2010 and 2011 primarily due to the loss of faculty positions in both areas. Since 2011, we have restored two faculty positions in Dairy Field Service and two positions in Equine Field Service. Recently, we have added new faculty positions in Equine Sports Medicine and Beef Cattle Field Service. We expect to see continued restoration and growth in the number of both bovine and Equine Field Service calls. We currently have limited field service experience in other large-animal species. We do provide a separate student experience in sheep through our seasonal lambing management rotation (Appendix 4.1 Table C). We provide herd health experiences in dairy cattle, beef cattle, sheep, horses, and fish as outlined in Table C.



12.4.2. Describe and analyze the adequacy of normal and clinically diseased animals (hospitalized, outpatient, field service/ambulatory, and production medicine) and how they are used for the DVM teaching program.

Our DVM clinical teaching program offers 31 clinical rotations to our third- and fourth-year students (Appendix 4.2 Table A), each directly overseen by 97 faculty and 60 clinical residents. Nine clinical rotations are considered majority primary care services, 13 are specialty care services, four see a mixture of primary and specialty care patients, and five are support services (anesthesia, diagnostic imaging, clinical pathology, necropsy, client support). Five clinical services are exclusively field (ambulatory) services, and one service has a field service component. Faculty members supporting these services represent 20 AVMA-recognized specialty colleges. Sixteen clinical rotations are exclusively surgical services or have a significant surgical caseload as a regular part of the service. In academic year 2014, 1,872 small-animal surgical procedures, 492 equine surgical procedures, and 293 livestock surgical procedures were performed at the VTH. Ten of our clinical services are exclusively small animal (including exotics), 10 services are exclusively large animal (equine or livestock), and 11 services see both small and large animals. Seven of our clinical services see normal animals, either exclusively (Spay-Neuter Clinic) or as part of a preventive care program or herd health program (SA community practice, dentistry, Equine Field Service, equine reproduction, Dairy Field Service, Beef Cattle Field Service, lambing management).

All of our clinical services are directly overseen by at least one faculty member. Most clinical services have residents, interns, fellows, and/or technical staff assigned most or all of the time. DVM students are assigned to all of our clinical services in their third and fourth years, either as elective or required rotations. DVM students are considered integral members of the medical team on all of our clinical services. Duties include client communication, medical record keeping, medical decision making, patient care, and assisting with or conducting procedures. Most services have at least daily case rounds with faculty, house officers, staff, and students. The VTH has several missions; however, no mission is considered more important than training DVM students. DVM clinical training is at the core of all of our clinical services.

While we've made progress in increasing our primary care and preventive medicine caseloads, continued expansion of our clinical teaching program in these areas remains an important goal. Recent successes include adding or restoring faculty positions in dentistry, urgent care, Equine Field Service, and Dairy Field Service. We also launched a new Beef Cattle Field Service. Two important primary care specialties that have not yet been incorporated into our clinical teaching program are nutrition and behavior. Adding new faculty or training current faculty in these areas is a high priority.

12.4.3. Describe unique clinical educational resources or programs that enhance the educational mission.

Animal Cancer Center: The Robert H. and Mary G. Flint Animal Cancer Center is a world-renowned center that includes a multidisciplinary clinical oncology service for small animals with cancer. The service includes medical oncologists, surgical oncologists, radiation oncologists, fellows, residents, and technical staff. The oncology service is an elective for third-year DVM students and is a required rotation for fourth-year DVM students who are predominantly small-animal or general-emphasis oriented. A coordinated, multidisciplinary approach to patient management benefits not only our patients but the educational experience for professional students, rotating interns, and residents, as well as surgical oncology fellows. The service sees 25 new referrals a week and about 100-125 recheck evaluations a week, with a total of 10 oncology faculty and 11-12 residents/fellows.

Argus Institute: Provides emotional support to clients dealing with difficulties involving their pets' health care. Argus counselors help pet owners with quality-of-life assessments, euthanasia decision making, parent-child discussions, and grief counseling. Argus staff teach and model these services to veterinary students to help them better care for their clients and patients. In 2013, Argus had more than 2,000 appointments with clients, faculty, staff, and students. Students interact with Argus counselors through the course of their daily clinical activities or may spend time in the Argus Institute as an elective clinical rotation. Veterinary students help to staff a free Pet Hospice Program that provides pet owners and their animals with end-of-life support in their own homes.



ERL: The ERL has been an active education, research, and clinical service unit of CSU since 1967 and is recognized as one of the premier programs in horse reproduction in the world. The new ERL building includes a 12,000-square-foot office/laboratory complex that is used for teaching, research, and service. ERL services include semen analysis and storage, mare/foal diagnostics and embryo transfer, and advanced assisted reproduction services. Educational programs available for DVM students include core theriogenology laboratories in the second year; elective one-week, third-year rotations; and elective two-week, fourth-year rotations. In addition, an elective Foaling Management course is available for second-year DVM students. Elective wet labs coordinated by the student chapters of the American Association of Equine Practitioners or Society for Theriogenology are held at the ERL each year.

SAST (Saving Animals in Shelters by Teaching) Program: The SAST program is operated through Small Animal Surgery Services. Shelter animals with curable, surgically correctable conditions are treated at the VTH through volunteerism, funding from industry and private donations, and support from the VTH. SAST enrolls approximately 15 to 25 dogs and cats per year that undergo simple fracture repair, ophthalmologic procedures, amputation, or correction of treatable congenital conditions, in addition to ovariohysterectomy or castration as indicated. These surgical procedures are performed by surgery residents, interns, and veterinary students under direct supervision of surgical faculty. Students get an increased surgical experience beyond what can be offered for client animals. All animals are adopted by the participating shelters once medically cleared.

Spay-Neuter Clinic: The Spay-Neuter Clinic is a clinical rotation for third- and fourth-year students that runs 48 weeks per year. Fourth-year students perform elective ovariohysterectomies and castrations on client-owned and shelter animals under the direct supervision of faculty. The clinic also offers students hands-on training in laparoscopic ovariectomy. Third-year students assist with surgery and perform anesthesia. Each student performs a minimum of eight and up to 16 surgical procedures per rotation.

Veterinary Diagnostic Imaging (VDI): Veterinary students work with the faculty and staff of the VDI section to gain hands-on experience in clinical and research diagnostic imaging for all veterinary species, using a variety of imaging modalities. Veterinary students not only have intensive training in small- and large-animal radiology and ultrasound imaging, but they also benefit from the unique advantage of having a full complement of advanced imaging modalities available in-house. Those advanced imaging methods include computed tomography and magnetic resonance imaging, along with a positron emission tomography-computed tomography. CSU is the only veterinary training program in North America with a PET-CT scanner within its veterinary hospital.

12.4.4. If off-campus clinical instruction sites are used regularly by multiple students, complete Table D and describe the planning, supervision, and monitoring of students; and contracting arrangements for noninstitutional-based faculty.

PetAid: This is an AAHA-accredited small-animal hospital in Denver that sees more than 5,000 patients a year and performs four to eight surgical or dental procedures daily. Students may elect a two-week rotation at this hospital. Under the supervision of two staff doctors, fourth-year students serve as primary “practitioner” on a variety of medical and surgical cases. Clients of the hospital are income-qualified and have limited means for referrals, which allows students to treat and follow patients with conditions that may not be possible at other practices. Each year, the PetAid rotation is available to 48 students. Over the last five years, the median number of students electing this rotation each year has been 36 (range 32 to 42 students per year).



Larimer Humane Society (LHS): Students spend time at LHS through a variety of rotations. Students make weekly visits to the LHS as part of the Community Practice Service. Visits to the LHS are also included in the Foundations courses in the first and second years. Lastly, students may choose to spend an elective rotation in shelter medicine, during which they work directly with LHS staff to provide care in all aspects of shelter medicine.

12.4.5. Describe the involvement and responsibilities of professional students in the health care management of patients (and clients) in clinical programs of the college.

Students are integral members of the medical team for all of our clinical services. For services that see patients, DVM students are typically responsible for taking the initial history, performing a physical examination, and formulating the initial treatment and diagnostic plans. They communicate findings to a faculty member or house officer. They are present for the initial clinician-client interactions, including the communication of the diagnostic/treatment plan, informed consents, and fee estimates. Students are generally responsible for most aspects of the electronic medical record including entering the history, physical exam findings, daily SOAP, surgical/procedure reports, client communication notes, and discharge instructions. Students participate in the ongoing medical decision-making process with other members of the medical team, including faculty (multidisciplinary when appropriate), house officers, and technical staff, both through periodic team discussions throughout the day and formal daily case rounds. Students work closely with technical staff in performing basic medical procedures. They assist with virtually all major procedures or surgeries for cases to which they are assigned. Students generally have more opportunity to perform hands-on procedures on primary-care and field services. Students always participate in communication with clients and sometimes with referring veterinarians, depending on the service and case. On support services, such as anesthesiology, students formulate treatment plans and directly administer anesthesia. On the necropsy service, students perform or participate in all necropsies.

12.4.6. Describe how subject-matter experts and clinical resources are integrated into clinical instruction.

All clinical services are directly supervised by our world-class faculty members. Our health care teams consist of at least one clinical faculty member (the majority of whom are board-certified in their disciplines), house officers, technical nursing staff, and DVM students. The ratio of clinical faculty members to clinical services is > 3:1. When assigned to clinical service, our faculty members are “on the clinic floor,” directly participating in patient care with students, as well as providing oversight of the service and conducting of daily case rounds. Our clinical faculty members participate directly in laboratory teaching experiences for students and are responsible for a majority of the lectures in our didactic curriculum, after the first year. Thus, the professors who teach in the classroom, with few exceptions, are the same professors who provide clinical teaching.

12.4.7. Describe the adequacy of the medical records system used for the hospital(s), including field service and/or ambulatory and population medicine. Records must be comprehensive and maintained in an effective retrieval system to efficiently support the teaching, research, and service programs of the college.

Our electronic medical records system, VetPoint, is used by all service areas of the VTH except Dairy Field Service and the ERL. VetPoint integrates with our registration, scheduling, and billing systems to provide an effective and complete medical record. VetPoint contains electronic forms for master problem list, history, physical examination, progress notes (SOAPs), surgery reports, dismissal instructions, medical summary, communication notes, and referring DVM letters. Daily progress notes for the patient use a problem-oriented medical record format. Additional external documents, images, and forms, including ancillary procedure reports, can be uploaded to the patient record and tagged to a specific patient visit. VetPoint also integrates with Clinical Pathology, Veterinary Diagnostic Laboratories, and VDI to provide access to all information. Diagnostic imaging and endoscopy images are stored on a PACs system that is accessible through VetPoint by the patient identification number. Key medical record data, including all owner and patient signalment fields, diagnoses, and medical procedures, are exported to a searchable medical database (eThority). This provides a powerful search tool for teaching and research through retrieval of case numbers based on simple and complex search criteria.



For field services, records can be created either for individual animals with a specific medical problem, or for herds when performing husbandry procedures on multiple animals at the same time; the latter includes vaccinations, pregnancy diagnoses, and breeding soundness examinations. In the case of herd records, the medical summary allows for an overview of the observations and procedures performed. Additional reports can be uploaded to the visit record as PDFs, Word documents, or Excel spreadsheets, and tagged to the specific visit for future review.

Electronic medical records for animals seen by the Dairy Field Service are dairy-specific databases and kept at the three contract dairies. These records are searchable and available to faculty and students for teaching and research. The ERL uses a combined system of computerized and written records, and will convert to a paperless system next year. The electronic medical records system is a commercial program specific for equine reproduction, called Wise Option, that tracks animal board, billing, and clinical procedures. These records are searchable, and are available to faculty and students for teaching and research.

12.4.8. Describe how the college has responded to increasing/decreasing clinical resources.

CVMBS has seen growth in clinical resources over the past five years in terms of overall caseload and faculty positions. Many clinical services have seen moderate to significant growth in caseload and revenue. We have restored key clinical faculty positions lost during the economic recession and added new faculty positions in key areas. We view this growth in clinical resources as positive for our DVM clinical training in terms of both increasing training opportunities in core experiences as well as exposure to emerging areas of veterinary medicine.

Our biggest challenge is facility constraints on further program growth. To address this need, we have developed a comprehensive plan to renovate and build new facilities on our South Campus. This plan includes a phased master plan for renovating the VTH, building a new Community Practice Hospital, building a new Equine VTH, building a second-year DVM building to bring second-year students to the South Campus, building a Livestock Hospital, and building an Institute for Biologic Translational Therapies.

12.4.9. Describe the means used to maximize the teaching value of each case across the curriculum.

All of our clinical training programs are directly overseen by clinical faculty members. Third- and fourth-year DVM students are integral members of the medical teams on all of these clinical services. The core clinical experience for fourth-year students is provided by direct assignment of students to clinical cases in the VTH. Students play a central role in all aspects of the medical management of their assigned cases, including client communication, medical record keeping, medical decision making, and performance of medical and surgical procedures. Clinical faculty members conduct at least once-daily clinical rounds with students and house officers to discuss cases. Students have access to all current and past case materials through our electronic medical records system. All fourth-year students are required to make a formal hospitalwide grand rounds case presentation to the faculty, house officers, and their classmates. Resources are provided through the Computer Assisted Teaching Support laboratory to assist students in preparing their presentations. Third-year students are assigned to the clinical rotations for half-days. They participate in morning rounds discussions and partner with fourth-year students to assist with daily management of cases. Small-animal surgical suites are equipped with video cameras that provide live-streaming videos of surgery to rounds rooms. When animals die, disposition forms request client permission to perform necropsy. Students perform all VTH patient necropsies under the direct supervision of a faculty pathologist.



STANDARD 5:

Information
Resources
12.5.1-12.5.5



Standard 5: INFORMATION RESOURCES

12.5.1. Describe and comment on the adequacy of information retrieval and learning resources.

With a combination of online and traditional learning resources, DVM students have multiple ways to gather and retrieve information. College faculty are pioneering and developing information technology solutions to facilitate learning.

Online course material: CSU uses RamCT, a Blackboard Learning Management System providing materials for 53 veterinary medicine courses and 21 veterinary rotations.

Virtual tools: Virtual learning tools, developed by CSU faculty, are providing students with additional insight and understanding. Virtual Canine Anatomy and Virtual Equine Anatomy enhance the students' dissection course work and improve efficiency. The virtual neurologic exam provides students with instructions for performing exams, explaining pathways, and interpreting results, and uses videos to demonstrate normal/abnormal findings. These tools permit self-paced, individualized learning and provide a focal point around which the instructor and student may exchange ideas and interpret course content.

Technology resources: Computers and technology are an essential element of CSU's veterinary training. Computers available in key areas facilitate learning via both wired and wireless connections on the CSU campus. Anatomy students have computers at each desk in the lecture hall and at each dissection table in the gross anatomy laboratory. Pathology students may use virtual microscopy to examine specimens. In practicum rotations, students use electronic patient records. All patient radiology images are stored and retrieved electronically. In addition to using their own personal computers, students may choose to use on-campus computer labs and/or check out computers/iPads from the CSU Libraries.

CSU Libraries: The CSU Libraries has an extensive collection of more than 2 million physical volumes and access to an abundance of electronic resources available 24/7. The Libraries has an annual budget of more than \$7 million for collections, and purchases more than \$6 million annually in electronic information resources, including electronic journals and e-books. It maintains subscriptions and facilitates access to several hundred databases (<http://lib.colostate.edu/databases>) and more than 30,000 electronic journals from major scholarly publishers.

VTH Library: The VTH Library, a hospital-based specialized branch, holds more than 13,000 print volumes, including books and journals. The collection is limited to veterinary and clinical medical subject areas. DVDs and CDs are part of the on-site collection. A reserve collection includes the most frequently used veterinary texts.

Library consortia: CSU Libraries participates in the statewide Colorado Alliance of Research Libraries, the regional Greater Western Library Alliance, Coalition for Networked Information EDUCAUSE, Internet2, Lyrasis, and the Association of Research Libraries. These collaborations enable the Libraries to leverage preservation, resource-sharing, and collection-development programs. Resource sharing is further enhanced by interlibrary loan services, including the locally developed RAPIDILL (<http://rapidill.org>) and CSU InterLibrary Loan and Local Document Delivery (<http://lib.colostate.edu/ill>).

12.5.2. Briefly describe the availability of learning and information technology resources support for faculty and students, including personnel and their qualifications.

Librarians are available to help faculty integrate library resources and customized course material into their classroom instruction. Librarians also help instructors locate resources such as articles, books, and multimedia resources. Multiple options are available for library users with disabilities. Five employees, with backgrounds in library science and learning technology, provide learning and instructional technology support for students and faculty. See Appendix 5.2 for qualifications of these individuals.



12.5.3. Describe the methods of access to library information resources for faculty and students when they are on and off campus.

The VTH Library may be accessed either in person or electronically. It is open 81 hours a week when classes are in session. Electronic access to most journals and databases is available at <http://libguides.colostate.edu/vet>. When library users are off campus, they may access resources online with a CSU electronic ID and password.

12.5.4. Describe the resources (training, support) available to students for improving their skills in accessing and evaluating information relevant to veterinary medicine for sources in any media.

Two librarians in the VTH Library provide library services, research, and reference support to VTH students, faculty, and staff. These librarians are available for in-person appointments to help with research strategies and source evaluation.

Library research skills are part of Foundations of Veterinary Medicine, <http://libguides.colostate.edu/vm611>, which introduces students to evidence-based veterinary medicine by training them to effectively locate, critically evaluate, and use relevant materials in a clinical setting.

12.5.5. Describe current plans for improvement.

CSU Libraries is working with the VTH to enhance the library facility and expand services to meet the needs of the 21st-century learner. In 2011, the CSU Libraries embarked on a \$16 million renovation to the Morgan Library. Students participated in its design, incorporating features, such as increased study and collaboration space. Design plans for the new VTH Library seek to integrate some of the same features, such as segregating the print collection from collaboration space.

The renovation plan, to be completed during the 2014-2015 academic year, will move the VTH Library into a new location on the second floor of the hospital with two distinct areas. The main VTH Library will house the print collection, will be designated for quiet study, and will be the library's main service point. The collaboration space (see Appendix 5.5) will be across the hall and will serve as a small-group learning hub. This space will include two smart-study rooms, accommodating up to 12 people. Each room will be equipped with an LCD screen and whiteboards. The two study rooms will be supplemented by a small computer lab and printing facilities.

An increasing number of CSU's books and journals are purchased in electronic format, and, if widely accepted by faculty and students, may decrease the need for large-print monograph collections. Future plans include purchasing important books in both print and electronic format to ensure maximum availability of key texts. Currently, a project is under way to create an electronic reserve shelf to make these important titles available 24/7.

In a campuswide initiative to improve the learning experience, CSU is migrating from the Blackboard (RamCT) Learning Management System to Canvas. Selected classes began using Canvas in the Spring 2015 semester, with plans to move the entire campus to Canvas by the Fall 2016 semester.



STANDARD 6:

Students
12.6.1-12.6.7



Standard 6: STUDENTS

12.6.1. Complete Tables A, B, C, and D, and analyze trends.

See Appendix 6.1 Students

Table A: The number of students in the DVM Program has remained steady over the last five years, with the individual class size ranging from 129-141. We aim to admit 138 students into the first-year class annually. This number may vary slightly depending on admissions proceedings (i.e., timeliness and permanence of student acceptance) for any given year. Students leave and re-enter the DVM Program as part of combined DVM/PhD pursuits, and also due to the optional one-year leave due to extenuating circumstances that is granted to those in good academic standing. Students may leave the program permanently as a result of academic dismissal or for personal reasons (see Appendix 11.1.a Table B, Attrition).

Table B: All Clinical Sciences residents are required to complete a Plan B MS. Regarding Clinical Sciences interns, the department funds the Livestock Medicine and Surgery (LMS) interns, while the James L. Voss Veterinary Teaching Hospital (VTH) financially supports all other internship positions. An additional LMS intern was hired in 2013-2014. The overall number of residents contributing to DVM education has remained relatively stable, with slight changes by department according to funding availability.

Table C: The total number of DVM students has remained stable over the past five years, ranging from 540-551. The percentage of minority students fell slightly in 2011 (16.18%) and 2012 (16.15%) from 18.20% in 2010. Subsequently, the number rose to 17.73% in 2013 and, in 2014, the DVM Program had the highest number of minority students to date, with 19.07% (103 students) meeting the AAVMC criteria for minority status.

Table D: Foreign participants in the DVM Program are primarily fourth-year students from Ross University School of Veterinary Medicine. The number of Ross students may be reduced in 2017 when University of Alaska Fairbanks (UAF) students join the fourth-year clinics. Ross students are not added to fully occupied senior rotations, but are assigned to services with existing capacity. In this way, hands-on/interactive opportunities are retained for CSU DVM students. Senior Ross students are added to the One45 system and are evaluated in the same manner as CSU students. Also through One45, Ross students are encouraged to evaluate senior rotations as are CSU senior students.

12.6.2. Provide a listing of student services. These services must include, but are not limited to, registration, testing, mentoring (advising), counseling, tutoring, peer assistance, and clubs and organizations.

CVMBBS has a strong commitment to providing comprehensive services to support student mental health, wellness, and success through initiatives implemented prior to, during, and after the veterinary student experience.

Support of admitted and enrolled DVM students: Two DVM student coordinators, one assigned primarily to years one and two and one assigned primarily to years three and four, provide assistance with orientation, registration, student accounts, financial aid, emergency loans, scholarships, absences/leaves, scholastic standards, rabies vaccination, access to resources and facilities, disability resources, course and rotation scheduling, and externships.

Mentoring: Students are encouraged to identify faculty mentors during orientation. No formal mechanism exists by which faculty members are paired with individual students. Groups of 15 students are paired with faculty advisers during first-year orientation at the CSU Pingree Park Mountain Campus; faculty receive contact information to intermittently communicate with students in their groups.

Tutoring: Tutoring services are provided, as outlined in the Tutoring Policy, and a link to the policy, along with Tutoring Employment Interest Forms and Tutoring Request Forms, is located within the DVM Curriculum portion of the DVM Student Resources Page (<http://csu-cvmbbs.colostate.edu/dvm-program/Pages/dvm-student-resources.aspx>). Each year,



DVM student needs are continuously evaluated, and the number of tutors is adjusted accordingly. Since Fall 2010, 13.2 tutors, on average, have been retained for each academic year to provide tutoring services for an average of 12.3 DVM students. The number of students requesting assistance varies sufficiently so that a trend has not been identified. In addition, students regularly seek out individual course instructors, through established office hours or appointments, for one-on-one and small-group support.

Academic counseling services: The associate dean for veterinary academic and student affairs serves as an initial contact for students experiencing academic difficulties, with the responsibility to identify potential tutoring needs or special accommodations, and to provide guidance through the leave, academic probation, or dismissal/readmissions processes. The Institute for Learning and Teaching (<http://tilt.colostate.edu/about>) provides advisement in study skills, time management, and other topics to promote academic success.

Disabled student resources: The CSU Office of Resources for Disabled Students provides assessments of students with learning disabilities and makes recommendations regarding needed accommodations; the link to Accommodations for DVM Students with Disabilities is located within the Policies, Rights, and Responsibilities portion of the DVM Student Resources page: <http://csu-cvmb.colostate.edu/Documents/dvm-policy-disability.pdf>.

Student organizations and peer support: A listing of student clubs and organizations may be found at <http://csu-cvmb.colostate.edu/dvm-program/Pages/DVM-Organizations.aspx>. Annually, 24 student leaders are selected from the second-, third-, and fourth-year classes. These students provide mentoring and support to incoming first-year students through ongoing large- and small-group activities, beginning with the DVM Program orientation. <http://csu-cvmb.colostate.edu/dvm-program/Pages/dvm-student-ambassadors.aspx>

Mental health and wellness services: The College has a number of initiatives to foster student success, starting with freshman orientation and continuing through the program and after graduation. A full-time licensed psychotherapist directs the mental health and wellness programs. This individual is available for individual, couples, and group counseling. Assistance is offered for a variety of issues including, but not limited to, stress management, test anxiety, depression, anxiety, grief and loss, and relationship concerns. Services are free and confidential (<http://csu-cvmb.colostate.edu/Documents/dvm-policy-counseling.pdf>). Guidance and resources are also provided to faculty and students who have concerns about a student or classmate. A policy has been instituted to address situations where there is a student of concern; it can be found within the Student Health and Safety subheading of the DVM Student Resources website. Additionally, two links within the DVM Student Resources website direct individuals to the “Tell Someone” online referral form, to be used in the case of concern over the health, well-being, or safety of a member of the CSU community.

Use of personal counseling services has steadily increased over the past four years, with more than 20% of students accessing DVM counseling services at least once during their program. In light of steady attrition and student performance, we view this as a positive indicator of growing acceptance of counseling as a healthy and responsible choice, as well as a trusting relationship between students and the support team.

DVM students also have full access to a counseling center and psychiatric services through the CSU Health Network (<http://health.colostate.edu/services/counseling-services>). Twenty-four-hour emergency service is also available through the center by contacting the CSU Police Department.

Health services: The CSU Health Network provides medical, dental, optometry, physical therapy, health education, and disease prevention services (<http://health.colostate.edu>).



Drug and alcohol programs: Screening, resources for information, support and safety, and emergency guidelines are accessible through the University Health Network website: <http://health.colostate.edu/resources/alcohol-other-drugs>. Additionally, the DAY (Drugs, Alcohol, and You) Program offers four programs tailored to students with varying needs in prevention, education, and treatment related to substance abuse. Resources are accessible through CSU Health Network Counseling Services: <http://health.colostate.edu/services/counseling-services>.

DVM student emergency loans: Two emergency student loan options are available; one through a SCAVMA-administered emergency loan program and one through Student Financial Services. The Veterinary Emergency Loan Fund was established more than 10 years ago to provide emergency loans to DVM students. Students may borrow up to \$1,000 and are asked to repay the loan balance within 90 days from the date of loan issue, unless an extension is approved. The loan is interest-free unless the borrower is delinquent. Information about the SCAVMA emergency loan option is available online: <http://csu-cvmb.colostate.edu/Documents/dvm-emergency-loan.pdf>. Students also have access to an additional \$500 through the Short Term Loan Program through Student Financial Services that must be repaid by the first billing date of the following semester; <http://sfs.colostate.edu/short-term-loans> provides further information.

Financial aid and scholarships: Information regarding financial assistance, College scholarships and awards, and financial planning is found on the DVM Student Financial Education, Advising, and Planning webpage: <http://csu-cvmb.colostate.edu/dvm-program/Pages/dvm-financial-information.aspx>. A summary of scholarship activity in support of DVM students is provided in Appendix 6.2 Table E.

Financial education and advising: The profession has identified the changing job market and the debt-to-income ratio as critical issues facing veterinary students. Our 2014 Graduating Senior Survey showed an average debt similar to the national average of \$150,000-\$160,000. In addition, upwards of 30% accepted employment opportunities making less than \$30,000 annually, largely due to high internship placement rates. In an effort to directly address financial literacy, department management, and salaries, CVMBS has created two new positions: a career development services manager (detailed below in 12.6.3) and a financial education specialist, both dedicated to serving DVM students full time. The responsibilities of the financial education specialist, hired in January 2015, include providing personal financial advising/education in the areas of debt, financial management, and scholarships, as well as liaising with student financial aid services and loan repayment experts to best advise students. Services will be provided individually through office hours, and to groups of students within the curriculum and through scheduled seminars. Currently, Practice Management/Professional Development, a required 3-credit course in year three, includes instruction in personal finance.

Opportunities to engage in clinical and basic science research: Please refer to Standard 12.10.3 for detailed information regarding breadth of research opportunities available to DVM students, as well as mechanisms for student exposure and engagement.

Legal services: Student Legal Services is funded by student fees and staffed by three licensed attorneys. Their mission is to provide confidential legal advice, counsel, and representation to the students, and to serve as an educational resource to the University and the community (<http://sls.colostate.edu>).

Computer and instructional technology support: Please refer to Standard 12.5 for detailed information regarding support services in this area.

12.6.3. Provide a summary of college activities in support of placement of graduates.

As noted in 12.6.2 Financial Education and Advising, a career development services manager position was added to the DVM student services team. This individual is dedicated to serving DVM students full time, and was hired in August 2014. Students are provided with several opportunities for career guidance and placement assistance throughout their



four-year program, via workshops, presentations, and individual mentorship. Specifically, students will be provided information relevant to career exploration, networking, externships/internships/residencies, resume/curriculum vitae and cover-letter writing, interviewing, and contract negotiations. A key initiative is creation of a job-posting system dedicated to DVM students in order to match student interests with available opportunities; additionally, the career development services manager will work to increase breadth in experiential and job postings through networking and establishing strong employer relationships. Outcomes measures are being identified to track progress. These areas are viewed as critical components of professional development along with communication, wellness, and ethics, which also have a presence in our curriculum.

12.6.4. Provide a description of the testing/grading system (scoring range, pass levels, pass/fail).

Policies relevant to grading, course rank, and class standing may be found within the Policies, Rights & Responsibilities section of the DVM Student Resources page, under the subheading Scholastic Standards, Policy and Procedures (<http://csu-cvmb.colostate.edu/dvm-program/Pages/dvm-student-resources.aspx>).

12.6.5. Provide academic catalogue(s) (or an electronic address for this resource) and freshman/upper-class orientation materials.

Curricular information and class schedules may be accessed on the DVM Student Resources page under the DVM Curriculum heading: <http://csu-cvmb.colostate.edu/dvm-program/Pages/dvm-student-resources.aspx>. Regarding junior and senior practicum, students receive rotation descriptions as part of orientation by the DVM student coordinator in the spring prior to the start of each year. Additionally, the DVM student coordinator provides individual advising for students who must secure their schedules sooner or who require special assistance.

Incoming DVM students are provided a full week of orientation before they begin their program <http://csu-cvmb.colostate.edu/Documents/dvm-term-orientation-agenda.pdf>. This orientation includes a welcome and overview of the College; information on scholastic standards and the honor code; an introduction to the computer system; tips on financial planning and management; and information on the Ram Outdoor Leadership Experience (ROLE). ROLE is an interactive orientation designed to aid the development of professional skills and formation of collegial relationships among incoming DVM students. Accordingly, students spend two days at the CSU Pingree Park Mountain Campus west of Fort Collins. Activities provide each student with opportunities to enhance communication skills and engage in teamwork. Additionally, individuals become acquainted with classmates, faculty, staff, and members of the veterinary medical community. The week culminates in an Oath and Passages Coating Ceremony, when each student is recognized for his or her unique background and experiences in a large gathering with fellow students, faculty, families, and friends.

Tailored orientations are provided for the Vet Prep, DVM/MBA, DVM/MPH, and DVM/PhD students. Each of the one-day combined program orientations is implemented in a collaborative fashion by faculty and staff representing both degree programs. The MBA program requires that students in the combined DVM/MBA program also attend the MBA orientation in the College of Business. Similarly, both the MPH and PhD programs require students to attend the respective individual program orientations. The Vet Prep orientation is overseen by the assistant dean, who also serves as the program director.

12.6.6. Describe the system used on an ongoing basis to collect student suggestions, comments, and complaints related to the standards for accreditation.

DVM students are encouraged to complete online course and instructor evaluations throughout the four years of the program. Within the DVM course instructor surveys, students are encouraged to comment on the CVMBS fulfillment of the AVMA standards for accreditation. The associate dean reviews these comments and provides a summary of relevant



information to the DVM Curriculum Committee. In years one, two, and three, student feedback regarding course offerings is provided through RamCT. Third-year students may currently evaluate clinical and laboratory rotations through feedback forms specific to each experience. Additionally, a junior practicum evaluation form will be integrated into One45 for implementation in Fall 2015. In year four, student feedback is provided through One45. Incentive for evaluation of senior practicum experiences is provided in that students must complete the online evaluation forms prior to receiving instructor feedback of their own performance. Evaluations are distributed to course coordinators and section heads, who review the quantitative and qualitative data and convey course and individual instructor feedback to all individuals providing instruction within the course/rotation. Additionally, the DVM student coordinator for years three and four and the associate dean for academic and student affairs review student evaluations, working with the DVM Curriculum Committee, course coordinators, and section heads to identify and address any areas of concern. An example of this mechanism, detailed in Standard 12.11.2.d., was the extensive review of equine clinical offerings in response to feedback from student evaluations in 2014. Sessions were held with equine faculty, which allowed enhancements to the quality and quantity of student-faculty interactions. In Summer 2014, a mechanism was enacted whereby students may provide anonymous feedback that is received by the CVMBS College Office, reviewed by the associate dean, and distributed to relevant individuals; the associate dean considers action as appropriate. The form, advertised via e-mail to all students as well as in announcements during first-year orientation and student forums, is accessible through the DVM Student Resources Page (<http://csu-cvmbbs.colostate.edu/dvm-program/Pages/dvm-student-resources.aspx>).

12.6.7. Describe current plans for improvement.

The DVM student services team has recently expanded to include a full-time career development services manager (August 2014) and a financial education specialist (January 2015), for reasons cited in 12.6.2. The search for an education development manager was initiated in January 2015; this individual will lead efforts in instructional support of faculty, educational curriculum development, and learner assessment. Additionally, the senior director of DVM student services role was augmented to an assistant dean for veterinary admissions and student services position, enabling more robust engagement in national and international venues. A program effectiveness coordinator was hired in November 2014 to oversee student learning and program assessment, and incorporation of data into strategies for success. This individual will be particularly valuable in collaborating with individuals within newly created posts to assist in program development. Two administrative assistants were hired in Fall 2014 and Winter 2015 to provide support to the DVM services team and optimize timely provision of quality services to the DVM students. In addition to expanding the breadth of expertise within the student services team, the director of DVM mental health and wellness is collaborating with colleagues at CSU and within other veterinary programs to develop programs and services to increase awareness of wellness issues and support students in maintaining optimal health.



STANDARD 7:

Admissions
12.7.1-12.7.6



Standard 7: ADMISSIONS

12.7.1. State the minimum requirements for admission.

The criteria for admission to the DVM Program are available online (<http://csu-cvmb.colostate.edu/dvm-program/Pages/DVM-Program-Entrance-Requirements.aspx>) and are reviewed annually. The College of Veterinary Medicine and Biomedical Sciences and Colorado State University comply with all federal statutes regarding nondiscrimination. The mission of the Veterinary Admissions Committee (VAC) is to identify a class of students with the intellect to thrive in the veterinary curriculum and whose understanding of the profession, diverse backgrounds, and career interests will enable them to contribute meaningfully to the current and future needs of the veterinary profession.

Required course work: While an undergraduate degree is not required, students are strongly advised to pursue a baccalaureate degree while completing the academic prerequisites for admission. While a C-minus or better will fulfill the prerequisite requirement, higher grades are more frequently associated with positive admissions decisions. All prerequisite courses must be completed by July 15 prior to matriculation into the DVM Program. Course requirements can be found at <http://csu-cvmb.colostate.edu/Documents/dvm-preparatory-coursework-guide.pdf>.

Standardized test requirement: Verbal and quantitative GRE scores from within the last five years are required for consideration. If an applicant takes the test more than once, the highest scores are considered. There is no required minimum score.

Application: Complete submission of the VMCAS common application and CSU supplemental application, three PPI (Personal Potential Index, a standardized recommendation) recommendations, official transcripts for all course work, GRE scores, plus associated application fees by the Oct. 2 national VMCAS deadline are required for consideration.

Residency: Class size is 138, plus the participants in the University of Alaska Fairbanks/CSU Collaborative Veterinary 2+2 Program. Admission is open to students in the following categories: Colorado (75); residents of cooperating Western Interstate Commission for Higher Education (WICHE) states (~35, dependent upon state support and applicant preference); Alaska residents (up to 10); and nonsponsored (~30, residents from any other state or international). The nonsponsored number varies depending on the number of students accepted through the WICHE and UAF/CSU 2+2 Program.

Special admission programs: The VAC reserves 33-35 positions each year for matriculating DVM students who have successfully completed the requirements for Vet Start, Vet Prep, Food Animal Veterinary Career Incentive Program (FAVCIP), or for one of the three combined-degree programs (DVM/PhD, DVM/MBA, DVM/MPH). We are working to create a new DVM/MS in animal sciences, projected to begin in Fall 2016.

12.7.2. Describe the student selection process, including measures to enhance diversity.

Overview of the admissions process and VAC: The mission of the VAC is to examine the credentials of applicants for admission and make recommendations to the dean regarding appropriate candidates for admission. The VAC is composed of 20 voting members who represent the opinions of faculty and professionals in the field. Members are selected from clinical and basic science faculty, including veterinarians and non-veterinarians, and veterinarians outside of CSU who serve in a variety of roles in the profession. Current CSU faculty members compose 82% of the members. One member serves as a diversity representative and is connected with an underserved minority population, one is a faculty member in the Department of Animal Sciences in the College of Agricultural Sciences, and five serve in various roles as veterinarians outside CSU. The College's veterinary student psychologist/counselor serves on the committee as a nonvoting member. Subcommittees for the combined programs select candidates for these programs and represent both schools in the combined program (College of Business and CVMB for the DVM/MBA program, for example). All committee members receive an orientation package when they begin their service, and time is devoted to review of the selection process.



Evaluation process: The entrance evaluation process overview is available online (<http://csu-cvmb.colostate.edu/dvm-program/Pages/understanding-the-dvm-entrance-evaluation-process.aspx>). Since 1997, the VAC has used a holistic process to select veterinary students. The goal is to evaluate applicants based on the entirety of their applications, with emphasis on academic history, noncognitive skills, and potential contributions to the veterinary profession. The system allows the committee the flexibility to weigh factors deemed by the school and the profession as important without the necessity of creating complex mathematical models to fit the confines of a point system and has been endorsed by the College's faculty and the University's legal counsel.

The review process currently occurs in two steps: a pre-academic screen of all applicants with a self-reported cumulative GPA of 3.4 or lower in all pools except the WICHE pool of applicants, and then general selection applied to four pools (Colorado, WICHE, nonsponsored, and Alaska). Two to three committee members conduct the pre-academic screen to identify those applicants with a strong enough academic record to advance to the general review process. The committee defines this as at least two semesters of strong academic performance and an upward trend in academic performance after poor academic performance. Those who are not deemed to be academically strong are issued an early-denial decision. The general review is conducted by pairs of evaluators (at least one veterinarian) who review applicants independently and then discuss together and ultimately create a grouped list of applicants (accept, alternate, deny) within the pool they review (Colorado, WICHE, Alaska, or nonsponsored). In the case of the Colorado applicants, the total pool is divided in half and assigned to two pairs of reviewers. Each review pair selects the top 50 applicants in their pool, and then exchanges these lists of candidates for a second review. These two review pairs then meet and ultimately create a grouped list (accept, alternate, deny) of the top 100 Colorado applicants. Those who review WICHE and Alaska applications pair with representatives from those states to conduct a holistic review and collaboratively create a ranked list of candidates for each pool.

This criteria-based holistic system necessitates ongoing validation of agreed-upon criteria as applied to each applicant and promotes self and group evaluation of potential biases. It also requires frequent interaction and discussion among committee members.

Measures to enhance diversity: CSU's DVM Program has a long-standing commitment to admitting a diverse group of students. The percentage of admitted minority students has been similar to the percentage applying and has also exceeded the national veterinary school average. CSU's success is the result of strong support/commitment to diversity from the College leadership and faculty, an "assertively inclusive" admissions philosophy that includes academic and noncognitive assessments (see details under 12.7.3), the holistic admissions process, and two special admissions programs that promote diversity (Vet Start and Vet Prep).

- **Vet Start Program:** This program, started in 1989, focuses on recruitment and retention of outstanding disadvantaged graduating high school students (five per year) <http://csu-cvmb.colostate.edu/dvm-program/Pages/vet-start-program.aspx>. These students pursue undergraduate studies to complete a BS with four years of scholarship support while also completing pre-veterinary requirements. In order to matriculate into the DVM Program, each Vet Start student must complete programmatic requirements including pre-veterinary course work within a minimum cumulative/term GPA of 3.25, must submit all application materials, and must present a profile (academics, animal experience, and recommendations) comparable to the typical student admitted in the incoming DVM class. The retention rate for students from entering undergraduate freshmen to achievement of the DVM is near 79%.



- **Vet Prep Program:** Originally supported by a Health Careers Opportunity Program grant starting in 1997, this program has a long-standing history of success <http://csu-cvmb.colostate.edu/Documents/dvm-vet-prep.pdf>. It is fully supported by the College, and serves as a bridge to the DVM Program for disadvantaged students. Regular applicants who claim a disadvantage (economic, cultural, or social) but who do not earn outright acceptance in the regular admissions cycle are re-evaluated, and up to 10 students are selected to participate in a yearlong academically rigorous program to prepare them for the rigors of the professional program. The program provides a \$5,000 program award, mentoring, and advising. Admission to the DVM Program is contingent upon receiving a minimum 3.0 cumulative GPA in the Vet Prep course work. This program has resulted in an average of seven disadvantaged students per year being admitted to the DVM Program since its inception. The retention rate is 94%.

12.7.3. List factors other than academic achievement used as admissions criteria.

Educational/life experience: Without question, the academic demands of the veterinary program require an ability to handle a rigorous biomedical sciences curriculum. It is expected that all admitted candidates demonstrate adequate to outstanding ability to handle the academic challenges of the program. Evaluators also take credit load per term, work demands concurrent with school attendance, participation in intercollegiate sports, and special circumstances into consideration, and correlate these factors to an applicant's grades. Because the cumulative GPA may not be fully reflective of a candidate's academic abilities, evaluators carefully analyze an applicant's entire academic history looking for positive or negative academic trends or short-term trends, especially relative to other life/work experiences.

Veterinary experience: There is no minimum number of veterinary service hours, but the VAC believes it is important for candidates to have enough experience in the field to have a solid understanding of the profession and to have established a commitment to pursuing this professional degree. A review of successful candidates shows that most possess more than 300 hours. This experience must be completed under the direct supervision of a veterinarian.

Animal experience: All other animal-related experiences, not including pet ownership, are evaluated. No minimum number of hours is required, but most successful candidates have at least 100 hours that demonstrate an understanding of critical husbandry/animal-handling skills.

ETS® PPI evaluation report (standardized recommendation): The VAC requests three PPIs for a candidate to be considered for admission at CSU. The committee decided to use only this standardized evaluation form starting in the 2014-2015 admissions cycle due to its relative objectivity and fairness for comparison among candidates over traditional letters of recommendation. A minimum of one from a veterinarian is recommended. Recommenders may be contacted at the discretion of the VAC.

Personal statement: Applicants are asked to write a personal statement that will allow the committee to understand the applicant's motivation to pursue a career in veterinary medicine, his or her understanding of the profession and career goals, and something about the applicant as a person. The committee understands career goals may change, but the committee wants to have an understanding of the applicant's current interests and how they may apply to his or her unique skill set and education. The statements also are evaluated for maturity, writing skills, reasoning, and communication skills.

Diversity: The VAC applies a broad definition to also include hardship circumstances; unique educational, life, and employment experiences; and demonstrated interest in underrepresented veterinary occupations.

Extracurricular, community activities, honors, and awards: The level and depth of accomplishments and leadership roles in university clubs, hobbies, activities (intramural/club), and community organizations are considered. Recognition for outstanding achievement academically or in service-related activities is also considered.



Criteria used in selecting candidates for FAVCIP: All candidates must apply to the DVM Program through the regular admissions process and are expected to meet all regular pre-veterinary and application requirements. These applicants also must fill out a special narrative section on the Colorado supplemental application to provide additional insights about their interests in the special program(s) for which they are applying. This program aims to create a sustainable source of future veterinarians for underserved disciplines and geographic regions central to the future of safe and successful livestock production. Up to five candidates per year are admitted based on their experiences and interests in pursuing careers in livestock production and medicine.

Combined-degree programs: In addition to meeting the requirements of the regularly admitted veterinary students, combined-degree program applicants are expected to demonstrate convincing interest in pursuing the combined degree and should have substantial experience related to the specific program to which they are applying. Subcommittees of the VAC are appointed to review the applications of these candidates, and representatives from each degree area (research, business, and public health) are also asked to review the candidates' files and make recommendations. The goal is to admit two to three candidates into the DVM/PhD Program and five candidates each into the DVM/MBA and DVM/MPH programs. (We also offer a DVM/master's in toxicology program; we have not received any applications in the program's first three years.)

UAF/CSU 2+2 Program: CVMBBS and UAF have formed a collaborative veterinary training program (<http://csu-cvmbbs.colostate.edu/dvm-program/Pages/uaf-csu-collaborative-veterinary-program.aspx>) that will allow 10 students, with preference for Alaska residents, to complete the CSU DVM Program at the two universities. Students will attend veterinary courses at UAF for the first two years and will attend CSU for the last two years. The UAF/CSU Collaborative Program was established between the two land-grant universities to give students in Alaska access to a top-ranked veterinary education partially in their home state, where veterinarians are in high demand. Additionally, the partnership gives CSU veterinary students an opportunity to learn about Alaska wildlife disease and health, marine-animal science, sled dog medicine, and a variety of global public health challenges that involve both human and veterinary medicine. A VAC subcommittee, with representation from UAF, selects highly qualified students with preference for Alaska residents and those with an interest in public health, livestock, and wildlife.

DVM/MS in Animal Sciences (proposed program): A combined DVM/MS-Ag Program is being established with the College of Agricultural Sciences at CSU to better meet the needs of large-scale livestock production through this unique training program. In addition to meeting the expectations of regularly admitted veterinary students, MS-Ag applicants are expected to demonstrate convincing interest in pursuing this combined degree and substantial experience related to livestock production. A VAC subcommittee, with representation from the College of Agricultural Sciences, will select one to two students per year, starting with the 2016 admissions cycle.

12.7.4. Complete Table A

Please see Appendix 7.4.

12.7.5. Describe current plans for assessing the success of the selection process to meet the mission of the college.

Annually, the general pool and combined and special programs (Vet Start and Vet Prep) are analyzed, detailing progress and outcomes of students and collection of demographic information on the Colorado Supplemental Application (career interests, experience, urban/rural backgrounds). We compare this to career interests at the time of graduation, hiring rates, and income levels. Our absolute attrition rate is low (less than 5%), and the pass rate on the national licensing examination is high. Please see Standard 12.11.1.a. Our VAC meets at least four times annually, and one meeting is dedicated to reviewing the selection process and instituting changes for the upcoming year. In 2013, the decision was made to implement a comprehensive admissions software system, called Slate by the company Technolutions, to replace the legacy



in-house software system that managed admissions for 15-plus years. Full implementation of the admissions portion of the software was accomplished during the 2014-2015 cycle, and the recruiting module is planned to be implemented in the 2015-2016 cycle. This management system will allow us to track all data and touch points from preapplication through acceptance in our program and to proactively communicate with all potential and actual applicants. The system will also provide a robust reporting/tracking system with which to better analyze our selection process.

In response to the faculty request to consider reimplementing interviews (discontinued in 2009) as part of the selection process to improve our analysis of noncognitive attributes, we have conducted a thorough analysis of options. The VAC has considered the benefits of validated scenario-based interviews for selection and also the value of the associated visit to campus for recruiting purposes. In August 2014, the committee voted to implement multiple mini interviews (MMI) in the future, with a projected start in 2016.

12.7.6. Describe your policies and procedures for admitting transfer students who will receive a degree from your institution, and state the number of transfer students admitted per year for the last five years.

Our transfer policy is available online (<http://csu-cvmb.colostate.edu/documents/dvm-policy-transfer-students.pdf>). As of January 2014, CSU considered transfer applicants in years two, three, and four of the DVM Program. Applicants are accepted on a space-available basis. Transfer applicants must have completed at least one year of course work at an AVMA-accredited institution. Accepted applicants are placed in the year or semester of the curriculum deemed appropriate after analysis and equivalency of the required courses has been verified through transcript review by the associate dean of veterinary academic and student affairs. Since the institution of this policy in January 2014, one student has transferred into CSU. In the five years prior, transfer students were not considered, and therefore no students transferred to CSU.



STANDARD 8:

Faculty
12.8.1-12.8.11



Standard 8: FACULTY

12.8.1. Complete Tables A and B, and assess the strengths of the faculty and support staff in fulfilling the College mission.

See Appendix 8.1 for Tables A and B.

The College of Veterinary Medicine and Biomedical Sciences has a large, dedicated, and highly trained team of faculty and staff, many of whom are international leaders in their fields, and have been able to significantly contribute to science, teaching, and service. The vast majority of our faculty have additional advanced degrees and board certification. Faculty from all four of our academic departments are involved with our DVM Program: Biomedical Sciences faculty provide a large portion of the curriculum in the first year, including anatomy and physiology courses; Microbiology, Immunology and Pathology faculty are heavily involved in all four years of DVM training, providing expertise in infectious disease, immunology, and pathology; Environmental and Radiological Health Sciences faculty offer a diverse array of expertise and, within the DVM Program, provide training in diagnostic imaging and radiation therapy; Clinical Sciences faculty are involved in all four years of the DVM curriculum, with greatest emphasis during the clinically focused third and fourth years.

The clinical veterinary program has experienced significant growth in its caseload and associated faculty and staff. The primary areas of growth have been in neurology, anatomy, cardiology, dentistry, community practice, equine sports medicine, equine surgery, and oncology. In addition to new faculty and staff, several significant chairs have been endowed including the Stephen J. Withrow Presidential Chair in Oncology, the Leslie A. Malone Presidential Chair in Equine Sports Medicine, and the Shipley University Chair in Comparative Oncology.

The DVM student services team has added several new key positions to support student wellness and to promote success, as described in Standard 12.6.

12.8.2. State the current number of academic faculty (head count) who possess credentials as listed in Tables C and D.

See Appendix 8.2 for Tables C and D.

12.8.3. Assess the challenges for your college in maintaining faculty numbers and quality.

Overall, CVMBS has experienced great success in recruiting and retaining high-quality faculty. Some areas have required additional resource investment (e.g., neurology) to maintain our level of excellence. One area that continues to be challenging is veterinary diagnostic imaging. While we currently have five board-certified radiologists, we have recently undergone two open searches and have found hiring for, and retention of, radiologist positions to be difficult. Though it has not negatively impacted the student experience or clinical care, it does place an additional burden on our imaging faculty.

The College employs both tenured and tenure-track faculty along with special appointment faculty. Typically, our special appointment faculty are more focused on clinical service, research, or teaching versus involvement in all three. The University system has recently allowed multiyear contracts (one to three years) for special appointment faculty. However, even with three-year contracts and similar benefits and privileges, there is still a culture that tenure positions are more desirable. On rare occasions, we have been unable to retain special appointment faculty who are recruited for tenure-track positions at other institutions.

12.8.4. Provide information on the loss (what discipline/specialty) and recruitment of faculty (Table A).

From 2010-2014, 29 faculty positions were vacated and 49 replacement or new positions were filled. The overall growth has been dramatic, with 16 new faculty hired in 2014. See Appendix 8.1 Table A.



12.8.5. Provide a concise summary of promotion and tenure policies, and the policy to assure stability for nontenured, long-term faculty.

The policies governing tenure and promotion are detailed in the CSU Academic Affairs/Faculty Manual (<http://policylibrary.colostate.edu/policy.aspx?id=441>). Faculty are evaluated annually, and their evaluation provides a basis for compensation, promotion, and tenure discussions. The Faculty Activity Survey (FAS) is a software program that helps capture and document research, scholarly activity, and teaching as part of the annual review process.

12.8.6. Provide an estimate of the weight assigned to promotion/tenure and or compensation for teaching, research, service, or other scholarly activities.

All faculty are evaluated annually by their respective department heads. Productivity in teaching, research, and service in alignment with their job descriptions and effort distribution are the basis for their annual evaluations. In 2013, the College adopted the core values of transparency, accountability, collaboration, and teamwork; we are working through the University human resources department and our College Code to begin incorporating these core values into our annual evaluations and our promotion and tenure process.

12.8.7. Briefly describe faculty professional development opportunities available in the college/university.

College faculty and staff are highly encouraged to continue lifelong learning through a variety of professional development opportunities. A key initiative in the College's strategic plan is: "Create the Organization of Choice – build and support a culture of personal and professional development." Some examples include junior faculty mentorship programs; grant-writing training sessions; scientific seminar series on a wide variety of topics (cardiovascular physiology, neurobiology, reproductive physiology, comparative oncology, teaching, etc.); faculty sabbaticals; and leadership training opportunities. The College also strongly encourages participation in national and international professional organizations and scientific conferences.

On a national level, there is an identified need for solid leadership skills within the veterinary profession. Dean, associate dean, and department head positions across the country can be challenging to fill. To help identify and supply the pipeline with emerging leaders, and to enhance our succession planning within the College, an external leadership consultant has been retained since 2012 (Cindy Anderson Consulting). This work includes executive coaching for College leadership, faculty and staff retreats, Myers-Briggs work sessions, and leadership roundtables with junior faculty.

In addition to College opportunities, the University offers a variety of professional development courses and workshops through, for instance, the Professional Development Institute run by The Institute for Learning and Teaching, the CSU Office of Equal Opportunity, and CSU Training and Organizational Development. Training offered through these University offices is free and available to faculty and staff at all employment levels; some training is available online.

12.8.8. Describe current plans or major changes in program direction that would be affected by faculty retirements, recruitment, and retention.

In Fall 2015, the first University of Alaska Fairbanks (UAF) veterinary students will begin their program at the Fairbanks campus. It is anticipated that this entering class will comprise up to 10 students with an approximate 50-50 split between Alaska resident and nonresident students. These students will spend their first two years at the UAF, then complete their DVM Program at CSU. UAF faculty and administrators are being hired to deliver the same caliber of program as the one at CSU. The admissions and curriculum committees have been in lock-step as we build and implement this new program. The dean, associate dean, and senior director have all visited the UAF campus, toured facilities, and met with UAF faculty and staff. We are confident that this large land-grant university will be an excellent partner in delivering veterinary education. The UAF students will join the CSU freshmen during their orientation period prior to classes starting, and we will encourage other ways to nurture a sense of unity between the groups. UAF students will need to successfully complete the same Capstone exams as the CSU students after years one, two, and three. Currently, the UAF Department of Veterinary Medicine employs seven full-time veterinary faculty and is in the process of hiring two additional faculty.



The Institute for Biologic Translational Therapies (IBTT) is a \$65 million research and teaching facility that will be built on the South Campus. This facility will focus on stem cell and regenerative medicine therapies for both animals and humans. The IBTT will include state-of-the-art surgical, imaging, research, and training facilities. The institute will allow expansion of our current orthopaedic and regenerative medicine programs, as well as an increase of several new endowed faculty positions.

The CVMBS has led a campuswide One Health Initiative that continues to gain momentum. This initiative is supported by all eight colleges and three schools (Biomedical Engineering, School of Public Health, and School of Global Environmental Sustainability). Two recent enhancements to the One Health Initiative have been a seed-grant program and the planned hiring of a One Health director.

12.8.9. Describe measures taken to attract and retain a diverse faculty.

Both the University and the College are strongly committed to support and enhance diversity. At the University level, the Office of the Vice President for Diversity “strives to foster an inclusive environment that promotes and nurtures diversity” by:

- recruiting and retaining faculty, staff, and students from historically excluded groups
- promoting a welcoming and inclusive campus climate
- engaging in educational outreach and community building.

At the College level, an important initiative within our new strategic plan states the following goal: “Enhance programs and processes to increase diversity among students, faculty, and staff.” From a recruitment and hiring perspective, search committees work to write job descriptions that are inclusive and advertise in journals and within organizations that reach large and diverse audiences. As per our Office of Equal Opportunity, “CSU does not discriminate on the basis of race, age, creed, color, religion, national origin or ancestry, sex, gender, disability, veteran status, genetic information, sexual orientation, gender identity or expression, or pregnancy. The University shall promote equal opportunity and treatment in employment through a positive and continuing affirmative action program for ethnic minorities, women, persons with disabilities, and veterans.” Last year, the College hired a diversity consultant (Dr. Kathy Obear Consulting) to facilitate a full-day retreat addressing diversity and inclusion. This is part of the University’s and College’s initiatives to improve diversity in our faculty and staff.

12.8.10. Describe programs for on-campus delivery of curricular content by individuals not employed full time by the institution (other than occasional guest lecturers), including subjects taught. Estimate the percentage of core curricular content delivered in this way.

With the exception of guest lecturers in select classes, the DVM curriculum is taught by College employees.

12.8.11. Describe the role of interns, residents, and graduate students in teaching and evaluating veterinary students.

The College employs a large number of interns, residents, and graduate students. These individuals are integral to our operation and to fulfilling our mission. We support a team approach in case management and discussion. Students work closely with clients, interns, residents, and faculty to present, review, and discuss cases. On-the-spot feedback is commonly provided to students. The James L. Voss Veterinary Teaching Hospital operation and fourth-year clinical training are aligned with specialties and sections. Residents and, less commonly, interns, are queried by faculty to provide input for the students’ end-of-rotation comments and grades. In general, interns, residents, and graduate students are not directly responsible for delivering DVM curriculum content.



STANDARD 9:

Curriculum
12.9.1-12.9.9



Standard 9: CURRICULUM

12.9.1. State the overall objectives of the curriculum and describe how those objectives are integrated into individual courses.

The CSU DVM curriculum provides four years of education and training to progressively advance students in knowledge and application of normal biology, pathophysiology, clinical medicine, surgery, clinical reasoning, and professional skills. Students are provided with a wide variety of learning opportunities to ensure they are prepared to work as professionals in a broad array of veterinary areas. Curricular goals, aligned with programmatic goals, are described below.

Goal 1: Coordinate and integrate graduate biomedical sciences programs with the DVM Program to expand and improve veterinary medical education.

In the first and second years of the DVM Program, students are introduced to fundamental principles in normal anatomy and physiology, systems interactions with infectious agents and pharmacologics/toxins, professional skills, pathology, anesthesia, and surgery. Instruction is primarily didactic, but with robust case-based learning, clinical reasoning, and hands-on experience in animal handling, physical examination, and basic surgical skills. Beginning in spring of the second year and continuing through fall of the third year, students are introduced to the clinical sciences series, offering instruction in common disease processes by organ, including diagnostic and therapeutic strategies. Throughout the third year, mornings are dedicated to junior practicum and participation in clinical rotations. Afternoons include advanced training in a broad array of clinical disciplines, with inclusion of electives in accordance with individual student interest. In spring of the third year, students select a Small Animal, Large Animal, or General Practice Track, engaging in Track Selectives in preparation for the wholly clinical fourth year.

Year	Core Credits Fall/Spring	Elective Credits Fall/Spring	Comments
1	22/21	3/6	
2	22/24	4/7	
3	21/20-21*	11/3	*Depending on track selectives
4	42*	3*	*Summer-Fall-Spring

Within the first and second years of the curriculum, robust foundational training is delivered primarily by faculty from the CVMBS departments of Biomedical Sciences; Environmental and Radiological Health Sciences; and Microbiology, Immunology and Pathology. These individuals collaborate with Clinical Sciences faculty to enhance consistency and relevance (e.g., pulmonary physiologists and small-animal criticalists standardizing and optimizing interpretation of blood gas analysis). Additionally, collaboration across disciplines is employed in interactive case-based recitations (e.g., a radiologist, anatomist, and cardiovascular physiologist engage students to discuss Tetralogy of Fallot). The breadth and integration of faculty expertise promote understanding of central principles in biology, normal structure and function, and the pathologic basis of disease.

Core curricular content emphasizes competencies for lifelong learning. Our Foundations of Veterinary Medicine for first- and second-year students provides an introduction to clinical cases and problem-based learning, as well as training in communication, ethics, jurisprudence, and critical thinking. Instructors in primarily didactic courses incorporate case-based learning, interactive exercises, and computer-based learning. Within Veterinary Neurobiology, first-year students engage in hands-on neurologic examinations and case-based assignments to promote active learning and development of clinical reasoning. Additionally, Veterinary Science: Research and Methods highlights the role of veterinarians in research and the relevance of research application in clinical practice, as well as training in experimental design and data interpretation. This course utilizes the breadth of researchers at CSU and brings in experts from industry, government, and foundations.



Collectively, the curriculum provides robust training in biological processes and physiology for a sound foundation in the understanding of pathophysiology and development of clinical competency. Skills in professional development are emphasized early, allowing for reinforcement and maturation as the student progresses through the program.

Goal 2: Support for and development of educational methods to improve the ability of students to think critically and communicate effectively.

Throughout the first and second years, small-group, faculty-facilitated, problem-based learning is incorporated as part of Foundations of Veterinary Medicine. In the fall of the first year, students are also introduced to the structure and process of clinical reasoning accompanied by case illustration. In the second year, the origin of clinical and systematic medical errors are discussed in multiple case-based problems. Faculty providing instruction in the first two years of the curriculum increasingly incorporate both computer-based and case-based learning opportunities (examples include online learning modules in the pulmonary portion of Veterinary Physiology and Histology, and case illustration of endocrine diseases in Clinical Sciences I). In the third year, clinical reasoning skills are advanced through case-based learning in core and elective courses. These skills are further developed in junior and senior clinical rotations, as clinicians work with students to progressively master history taking, physical examination, development of differentials, diagnostic test selection, and treatment planning, as well as management of unanticipated outcomes.

Through our Veterinary Communication for Professional Excellence program, dedicated specialists foster effective communication through an innovative, progressive, four-year core curriculum. Specifically, this training includes video recording of client interviews (first year) and interactions with simulated clients (professional actor-educators) as students manage a communications, ethical, and financial dilemma (second year). In the third year, 40 hours of laboratory and in-classroom training employing role playing and high-caliber simulation is provided, with emphasis on client introduction, history taking, developing long-term client relationships, providing lay explanations of medical information, and creating partnerships to enhance compliance. In the fourth year, students in Small Animal and General Practice tracks engage in one or two video-review sessions. All activities are facilitated by veterinary communications faculty and/or trained faculty coaches, and are followed by constructive critique and student self-evaluation.

12.9.2. Describe major curricular changes that have occurred since the last accreditation.

Please see Appendix 9.2 Curricular Changes.

12.9.3. Describe the process used for curriculum assessment (including course/instructor evaluation) and the process used to assess curricular overlaps, redundancies, and omissions.

The DVM Curriculum Committee is described in the CVMBS College Code. The term for faculty representatives is three years. The committee meets twice monthly during the academic year and acts in accordance with objectives outlined in the code <http://csu-cvmb.colostate.edu/employee-resources/Pages/pvm-curriculum-committee.aspx>.

Continuous programmatic review by the committee is achieved by three principal mechanisms. First, a review of systems across the four program years is conducted every seven years. The last review was completed in 2011-2012, and the DVM Curriculum Committee Curricular Review Summary may be found at <http://csu-cvmb.colostate.edu/Documents/pvm-curriculum-summary.pdf>. A targeted systems review is conducted more frequently, if indicated, through student or faculty feedback, principal instructor turnover, or curricular reorganization (e.g., addition or removal of elective offerings). Second, there is ongoing consideration of topics submitted by students and faculty. Examples include addition of electives to address curricular gaps or industry demand, and extraction of course material identified as redundant or of minimal contemporary relevance. Third, the committee typically assumes a yearlong project emphasizing larger programmatic priorities brought forth by students, faculty, and/or the College administration, or made evident by industry trends. Recent examples include Capstone I examination improvement and development of a program to provide nonpractice



or alternative experiential learning opportunities. Collectively, this curricular review strategy enables the committee to respond to changes in instructors and resources, advances in knowledge, changing professional or industry requirements, and student population trends.

Didactic courses within the DVM Program incorporate student evaluations of course content and presentation, plus instructor effectiveness. An online evaluation form is used to manage these data confidentially. Quantitative and qualitative feedback is provided to course coordinators for dissemination to individual instructors; instructors are able to view information relevant to the course in general and his/her section(s). Additionally, the associate dean of veterinary academic and student affairs reviews all student evaluations each semester, providing an additional screen for quality educational delivery and design. Pre-tenure faculty are encouraged to solicit one or two peer reviews of teaching annually. The coordinator of instructional design (as of September 2013) and educational development manager (search initiated January 2015) have provided/will provide expertise in instructional design and effectiveness. Student evaluations of clinical rotations, including assessment of faculty, house staff, and employees, are solicited online through One45. Student response rates have averaged 85.9% since the system was initiated in the 2010-2011 academic year. Student assessment data are sent to clinical section heads quarterly for review, and weaknesses in faculty, house officer, or staff performance are addressed through section meetings and/or with individuals as appropriate. Course and instructor evaluations are incorporated into the annual review process. Effectiveness and innovation are rewarded, while individuals with limitations are assisted through provision of resources (e.g., collaboration with teaching leaders within the College). Faculty are encouraged to improve their teaching effectiveness by taking advantage of The Institute for Learning and Teaching (TILT) at CSU. TILT provides direct support to faculty to enhance teaching and student success. House officers and clinical instructors are rewarded for promotion of active learning and optimally partnering with students in case management.

12.9.4. Describe the strengths and weaknesses of the curriculum as a whole.

Curricular strengths

- **Community Practice:** The Community Practice service has been expanded to include two medicine clinicians and one surgeon, increasing student exposure to preventive medicine, small-animal generalist practice, and spay/neuter procedures. This rotation has been further enhanced by incorporating time at the local humane society (Larimer Humane Society), which promotes additional hands-on surgical experience.
- **Dentistry and Oral Surgery:** Expansion of the Dentistry and Oral Surgery service enables instruction relevant to equine and small-animal patients; two faculty now provide robust didactic and clinical training.
- **Excellence in clinical research:** The Robert H. and Mary G. Flint Animal Cancer Center, Bud and Jo Adams Equine Reproduction Laboratory, and Gail Holmes Equine Orthopaedic Research Center continue to expand clinical and research capabilities; additionally, the College houses five Programs of Research and Scholarly Excellence producing highly regarded research discoveries that inform curriculum. Collectively, these entities enhance education through research and mentoring opportunities, national recruitment of patients, and cutting-edge diagnostics and therapeutics.
- **Livestock Field Service:** Instruction is greatly enhanced due to the close proximity of the teaching hospital to numerous commercial and hobby livestock operations. The Dairy Field Service conducts daily visits to local farms, offering hands-on clinical instruction within the junior and senior rotations. The in-house Livestock Medicine Service facilitates provision of surgery and advanced medical services for all livestock species. Further, we have implemented an additional field service emphasizing hobby farms and beef cattle.
- **Professional communication:** The Veterinary Communication for Professional Excellence curriculum is one of the most progressive in the nation, incorporating simulated clients, observational learning, feedback and self-evaluation,



individual video review, and progressive skill advancement, all of which ultimately improve patient care and the human-animal bond.

- **Combined-degree options:** The DVM/MPH, DVM/MBA, and DVM/PhD programs address varied student interests and identified needs for veterinarians in unconventional and specialized roles. We also offer a DVM/master's degree in toxicology; we have received no applications in the program's three years.
- **Instructional excellence:** Teaching is a high priority for faculty, evidenced by the formation of the Committee for Assessment and Development of Effective Teaching (CADET) and DVM Steering Committee and the participation of 15 faculty members in the Teaching Academy of the Consortium of West Region Colleges of Veterinary Medicine.
- **Clinical faculty resources:** All clinical sections are represented by at least two specialists, providing depth and breadth of experience as well as ample availability to trainees.
- **Commitment to postgraduate success:** The career development services manager and financial education specialist provide individual student advising as well as instructional content.

Curricular weaknesses

- **Administrative variability:** Administrative turnover has contributed to incomplete follow-up on Curriculum Committee recommendations and inconsistency between policy and practice. A large-scale review and revision of all programmatic policies was completed in 2014, and a careful assessment of the 2011-2012 Curricular Review was conducted to ensure that identified limitations are addressed. The recent addition of the program effectiveness coordinator and the current search for an education development manager had slowed some implementation plans, but we expect implementation to move ahead now.
- **Mechanisms for structured training in alternative professional opportunities:** A structured mechanism by which the program prepares students for alternative, or nonpractice, roles is not fully developed. In Spring 2013, the DVM Curriculum Committee considered mechanisms by which the program may offer training in areas such as industry, food safety and security, animal protection, regulatory veterinary medicine, and epidemiology. A proposal for creating a cadre of dedicated faculty mentors, each with an array of experiential learning opportunities, is under consideration by the DVM Steering Committee.
- **Instructional training:** Presently, there is not a structured approach to ensure that faculty and house officers are formally trained in classroom and clinical teaching. Establishment of teaching mentors, incentivization, and the hiring of an educational development manager, as well as the aforementioned CADET, DVM Steering Committee, and Teaching Academy, are strategies directed toward resolving this limitation.
- **Campus space limitations:** Our first- and second-year students are primarily on the Main Campus, while third- and fourth-year students reside on the South Campus. A proposed addition to the VTH to house second-year students is currently under consideration as part of the South Campus Master Plan.

12.9.5. Describe preceptor and externship programs (including the evaluation process).

Connection with professional mentors is a requirement of the Foundations courses throughout the first two years of the program, assessed through mentoring activity reports each semester. Students encounter contacts for preceptorships and externships through interactions with CVMBS faculty, guest lecturers, and student clubs/organizations. The duration of CSU-sanctioned experiences ranges from two to eight weeks, and includes practice and nonpractice learning opportunities. Direct supervision and student grading is provided by a veterinarian or topical expert (an example of the latter being



an MPH, PhD, or attorney). Students are required to provide an evaluation of participants and the learning experience to receive academic credit. Evaluations are recorded by the student coordinator; problematic experiences are reviewed by the faculty practicum coordinator in consideration for exclusion.

12.9.6. Curricular Digest

Please see Appendix 9.6 Curricular Digest. Information regarding junior and senior practicum rotations may be found at <http://csu-cvmb.colostate.edu/Documents/dvm-j-p-rotations.pdf>
<http://csu-cvmb.colostate.edu/Documents/dvm-s-p-rotations.pdf>

12.9.7. Describe current plans for curricular revisions.

As described, our curriculum is routinely evaluated both holistically and course/lecture specific. Currently, the following modifications are under way:

- In response to the 2012 Reproductive System review, we are considering an independent course in small-animal reproduction to prepare students in the management of pregnancy, dystocia, and reproductive diseases.
- After evaluating feedback from faculty and students, we are considering narrowing use of “hands-on” microscope training to reflect skills commonly employed in practice (cytology, fecal examinations) and providing basic histology via an online platform.
- Online Equine Reproduction and Small Ruminant/Camelid Medicine electives are currently under review.
- With the hire of the financial education specialist, there will be graded introduction of financial information to parallel professional development. This will improve timing of content delivery, as currently most of this information is presented en bloc in spring of the third year (Practice Management/Professional Development).
- With the hire of a career development services manager, a curriculum emphasizing professional skills, career exploration, branding, application/interview strategies, and co-curricular opportunities is under development.
- The DVM Curriculum Committee has initiated regular course reviews incorporating student evaluations and course coordinator participation; each course will be reviewed every four years.

12.9.8. Provide a description of the testing/grading system (scoring range, pass levels, pass/fail) and the procedures for upholding academic standards.

In 2012-2013, the DVM Curriculum Committee voted to restore traditional letter grading (A through F) as the primary evaluative outcome, with the aim of attenuating inter-student competition and the impact of point discrepancies inherent in the ranking system. The change was approved by the CVMB faculty and implemented with the DVM Class of 2016. Policies relevant to scholastic standards, student disabilities, attendance, leave of absence/withdrawal, examination guidelines, and grading may be viewed under the Policies, Rights & Responsibilities subheading on the DVM Student Resources page, <http://csu-cvmb.colostate.edu/dvm-program/Pages/dvm-student-resources.aspx>.

12.9.9. Describe the opportunities for students to learn how different cultural and other influences (e.g., ethnic origin, socioeconomic background, religious beliefs, educational level, disabilities, and other factors) can impact the provision of veterinary medical services.

Within Foundations of Veterinary Medicine, students are introduced to clinical bioethics in the spring of the first year, through case-based problems incorporating cultural and religious diversity. The principles of respect for autonomy,



nonmaleficence, beneficence, and justice are introduced in the context of client diversity, and students are led to consider the impact of their own biases and beliefs on client interactions and case management.

Within the communication curriculum, students engage in interactions with clients of diverse ethnicity, age, sexual orientation, and marital and socioeconomic status. Students work to discover and respond to clients' perceptions regarding affordability of services, value of veterinary care, role of the pet within the family, and quality of life.

Healer's Art, offered as a 1-credit elective to students in the first three years of the curriculum, is unique to CSU; we are the first veterinary program to offer this distinctive learning opportunity. The course encourages students to identify, strengthen, and cultivate the human dimensions of veterinary medicine while recognizing the inherent diversity in their colleagues, practitioners, clients, and patients. The course encourages students to make an active commitment to strengthening and preserving their own humanity and the humanity of all they serve.

As a regional and national referral center, the CSU VTH serves a multifaceted client population. Relevant veterinary organizations include the American Holistic Veterinary Medicine Association, International Veterinary Students Association, One Health Club, Spectrum, and the Student Chapter of the Association of Shelter Veterinarians. Overseas experiential learning opportunities are offered at the Royal Dick School of Veterinary Studies in Edinburgh, Scotland, and in Todos Santos, Mexico. Colorado State University enjoys a robust campus program in diversity: <http://diversity.colostate.edu/>.



STANDARD 10:

Research
12.10.1-12.10.3



Standard 10: RESEARCH

12.10.1. Describe up to five programs of research emphasis and excellence that integrate and strengthen the professional program

The College of Veterinary Medicine and Biomedical Sciences emphasizes investigation and offers a diverse array of faculty and contemporary biomedical research programs in a strongly supported research environment. CVMBS prides itself on its successful research programs, with Universitywide concentrations of excellence in infectious disease, cancer, neurobiology, epidemiology/diagnostics, musculoskeletal research, and reproduction. CVMBS faculty hold six of 12 University Distinguished Professor positions, run five of 16 University Programs of Research and Scholarly Excellence (PRSE), and lead two of CSU's three Superclusters, designed to facilitate commercialization of research discoveries in infectious disease and cancer. Five research areas of specific relevance to our DVM Program are:

The Infectious Disease Supercluster (IDSC) develops and implements effective interventions for human, animal, and plant infectious diseases of global importance. The two overarching goals of the IDSC are to enhance the overall infectious disease research, training, and service capacity at CSU to promote research discoveries, policy development, and capacity to address infectious disease issues in the state, nation, and world; and to accelerate development and application of infectious disease products and best practices to direct, prevent, and treat infectious diseases worldwide. Components of the IDSC are:

- The Rocky Mountain Regional Center of Excellence for Biodefense and Emerging Infectious Diseases Research was established in 2004 as part of a national effort by the National Institute of Allergy and Infectious Diseases to facilitate research, product development, and training of scientists for emerging infectious diseases and biothreat agents.
- The Mycobacteria Research Laboratories (MRL) comprise multiple laboratories and Biosafety Level 3 facilities and house state-of-the-art research equipment. More than 20 MRL faculty work on multiple mycobacterial research topics, including glycolipid biochemistry, drug design, vaccine and therapeutic development, immunology, and pathogenesis.
- The Arthropod-borne and Infectious Diseases Laboratory (AIDL) is a research center focusing on arboviruses and their obligate vectors. The AIDL includes 11 faculty involved in a multidisciplinary research and training consortium, interacting with other research units such as the Centers for Disease Control and Prevention division in Fort Collins. An underlying theme of the AIDL is to affect a union of field investigations with population genetic and genomic approaches to understand transmission, persistence, emergence, and control of vector-borne pathogens.
- The Prion Research Center, established in 2011, comprises nine faculty investigating diagnosis, surveillance, pathogenesis, transmission, and control of human and animal prion diseases (including chronic wasting disease, scrapie, and mad cow disease) using a variety of outbred and transgenic animal and new in vitro models. In 2012, the center was named CVMBS's newest PRSE.
- The Retrovirus Research Group comprises seven faculty in the Department of Microbiology, Immunology and Pathology (MIP), and studies the pathogenesis, virology, immunology, and oncogenic effects of a variety of retroviruses, including the human and feline immunodeficiency viruses (HIV, FIV), walleye dermal sarcoma virus, feline leukemia virus (FeLV), and feline syncytial/foamy virus.



The Cancer Supercluster builds upon more than three decades of Colorado State excellence in cancer research and is currently funded by NASA, the National Institutes of Health, the National Cancer Institute, the Morris Animal Foundation, and the U.S. Department of Energy. Specialized centers within this unit include:

- The Robert H. and Mary G. Flint Animal Cancer Center (ACC) represents the largest single subcomponent of the Cancer Supercluster. The ACC mission is to improve the prevention, diagnosis, and treatment of cancer, translating research and knowledge from animal models and veterinary patients to benefit human and animal health.
- The Radiation Cancer Biology and Oncology program in the Department of Environmental and Radiological Health Sciences provides research and educational opportunities in radiological health sciences and focuses on the role of radiation in inducing, diagnosing, and treating cancer.

The Animal Reproduction and Biotechnology Laboratory (ARBL) is an interdepartmental program that includes 25 faculty focusing on research, teaching, and service in reproductive biology. The ARBL has been recognized as a PRSE since 1989. The Bud and Jo Adams Equine Reproduction Laboratory is a program within the ARBL and is an internationally recognized leader in assisted reproduction technologies (ART). Many of the ART techniques developed by the ARBL are now used commercially worldwide in humans and other species. Other research focal areas include sperm, egg, and early embryo development (SEED), healthy baby/healthy mother (HBHM), and translational reproductive medicine (TRM).

The Musculoskeletal Research Program is recognized as a PRSE and consists of three units: Gail Holmes Equine Orthopaedic Research Center (EORC); Orthopaedic Bioengineering Laboratory (OBL); and Surgical Research Laboratory (SRL). The EORC's focus includes articular cartilage healing, microdamage in subchondral bone, development of fluid markers, and development of molecular biology techniques to evaluate early changes in cartilage healing and to document early molecular events in arthritis in horses and humans. The SRL has pioneered the use of sheep as animal models of human orthopaedic problems. The center is recognized internationally for its highly impactful translational studies that have advanced joint and musculoskeletal injury treatment modalities for horses and humans.

Molecular, Cellular, and Integrative Neurosciences (MCIN) is another University PRSE and involves 30 faculty studying neuronal differentiation, degeneration and regeneration, ion channels and membrane physiology, synaptic mechanisms, neuronal circuitry, sensory biology, artificial neural networks, cognitive neuroscience, and protein misfolding diseases.

12.10.2. Provide evidence for the breadth and quality of the college research program, including:

12.10.2.a. The number of individual faculty members within each department involved in research, total research FTE, and research productivity for each of last three years.

Appendix 10.2.a Table A outlines faculty FTE devoted to research, publications, and book chapters for the last three years. Table B provides data on ranges of FTE by department. Table C outlines extramural funding by source and patents produced from 2012-2014.

12.10.2.b. A description of other measures of faculty research activity (e.g., faculty participation and presentation of original research in scientific meetings, involvement of faculty in panels, advisory boards, or commissions, and national and international awards received).

Table A in Appendix 10.2.b. outlines evidence of sponsored awards, manuscript and abstract production, invited presentations, national awards, and graduate student metrics for CVMBS in 2012-2014, providing evidence of outstanding research activity by CVMBS faculty.



Additional noteworthy awards include:

2012: CVMBS faculty recognized with national research awards including the R.M Taylor Award (Dr. Barry Beaty, highest award given by American Society of Tropical Medicine and Hygiene); the AAVMC 2012 Excellence in Research Award (Dr. Edward Hoover); the E.P. Pope Award (Dr. Barb Powers, highest honor from American Association of Veterinary Laboratory Diagnosticians); and Winn Feline Foundation Excellence in Feline Research Award (Dr. Michael Lappin).

2013: CVMBS faculty recognized with national research awards including International Scientific Achievement Award (Dr. David Twedt, World Small Animal Veterinary Medical Association); AMCA Medal Award (Dr. Chester Moore, highest honor given by the American Mosquito Control Association); CVMA 2013 Distinguished Veterinary Service Award (Dr. Tim Holt). Two CVMBS faculty awarded Webb-Waring Biomedical Research Early-Career Investigator awards (Drs. Brad Borlee and Lucas Argueso).

2014: CVMBS faculty recognized with national research awards including a 2014 appointment to the National Academy of Sciences (Dr. Edward Hoover); 2014 AAVMC Excellence in Research Award, presented by Zoetis (Dr. Susan VandeWoude).

2015: Named Fellow in the National Academy of Inventors (Dr. George Seidel).

12.10.3. Describe the impact of the overall research program on the professional program and on professional students.

Appendix 10.3 Table A lists DVM student research projects, publications, and participation in combined-degree programs from 2010-14.

12.10.3.a. Describe courses or portions of the curriculum where research-related topics are covered (literature review/interpretation, research ethics, research methods, or techniques, and study design).

In an effort to incorporate research elements in a focused curricular offering, Veterinary Science: Research and Methods is offered as a 1-credit, required pass/fail nonranked course taught fall semester of the first-year DVM curriculum. Sue VandeWoude, DVM (associate dean for research, CVMBS), is course creator and coordinator. This course illustrates the role of research in furthering the practice of veterinary medicine by presenting a series of lectures from clinical and basic science investigators, faculty, and staff who describe important elements of the research process. Course objectives include orienting DVM students to elements of the research process, particularly where veterinarians may be involved; describing topical research investigations relevant to veterinary medicine; outlining the structure of clinical and basic science publications pertinent to veterinary medicine and providing a framework for critical analysis of published research; illustrating research career opportunities for veterinarians and externship/summer employment opportunities in research for veterinary students; and providing network opportunities for students with research faculty. This course was initiated in 2009 as an experimental elective and was converted to a required course in 2011. To date, more than 60 outstanding veterinarians engaged in a wide variety of research contexts and venues have spoken to the students enrolled in this class (see Appendix 10.3.a Table A). Content, assignments, and faculty participation continue to evolve to maximize impact for entering students. Pre- and post-course surveys have indicated increases in understanding of the research process and interest in research as a career option (Appendix 10.3.a Figure 1).

A survey was conducted in July 2014 to gauge current utilization of research attributes in veterinary curricular offerings. One hundred instructors involved in 45 courses and senior/junior practicum rotations were asked to participate. Thirty-seven faculty (37%) from 15 practicum rotations and 24 courses (53%) provided responses summarized in Table B in Appendix 10.3.a. These survey results indicate that evaluation of scientific literature and critical analysis of data are practiced in a high percentage of cases, and that interaction with graduate students is frequent.



12.10.3.b. Describe/list the current or proposed opportunities for participation in research, including summer research program (Merial, NIH, Howard Hughes, etc.), academic year programs (NIH fellowships, industry funded, curricular time allowed for research), student employment in research labs and projects, and individually mentored research experiences.

Approximately 70 faculty mentors (approximately 50% DVM; 50% PhD) have participated in supervision of pre- or postdoctoral veterinary researchers in the past five years (<http://csu-cvmb.colostate.edu/dvm-program/Pages/Veterinary-Scholars-Program.aspx>). These faculty participate in 12 areas of multidisciplinary research, including cancer biology, reproductive and cardiovascular physiology, infectious disease pathogenesis and therapy, and stem cell research.

CVMBS DVM Research Training: I. CSU Veterinary Summer Scholars Program

Structured, short-term research training for veterinary medical students was first offered at CSU in 1984 via an NIH-funding mechanism. In 2014, organized summer research opportunities (Appendix 10.3.b Table A) were offered to 33 students supported by a variety of extramural and intramural sources in a program that has experienced significant growth during this decade (Appendix 10.3.b Figure 2).

CVMBS DVM Research Training: II. Academic Year Programs

A formal DVM/PhD training program was established in 2004, funded primarily by CVMBS resources and an NIH-DP-CPSI-ORIP T32 predoctoral training award established in 2013. Nine students have completed the program; 15 are currently enrolled. The program is directed by University Distinguished Professor and National Academy of Sciences member Edward Hoover, DVM, PhD. In each year, typically two new students are appointed from a pool of >50 applicants after a rigorous review and recruitment process. The combined program begins with a year of graduate studies, including rotations in potential laboratories, course work, and research in the home laboratory, once it is chosen. During the second and third year of the program, students enroll in the first- and second-year DVM curriculum, while remaining engaged in their home laboratories. The next two (maximum three) years are spent working toward the PhD thesis, which students are required to submit and defend before returning to the third- and fourth-year DVM curriculum. Throughout their entire program, all DVM/PhD students register for the 1-credit, once-a-week course, Translational Medicine. Fall semesters are “Research in Progress,” wherein students present their own research, with an emphasis on translational benefits of their work for human and animal health. Different topics are pursued each spring semester with the overall emphasis being to encourage students to examine how their work impacts health and medicine, and to give students practice in presenting their research to medically knowledgeable audiences not in their fields. Ten of the 15 current students have received awards and/or grants while enrolled in the program. Four have pending applications for the newly expanded NIH F30 and 31 individual fellowship grants. An external review conducted in November 2014, noted, “The DVM/PhD Program at Colorado State University has ... developed into an outstanding, top-tier national program, and one of few top training institutions for research veterinarians worldwide. The program has increased in size to attain a critical mass for training, has outstanding leadership, excellent faculty, a structured program, excellent advising, a strong applicant pool, excellent students, and strong institutional commitment. ... We laud the college for its commitment and investment in the program.” The goal of this review was to garner more information to improve the program as well as to provide additional witness and assessments to bolster an application for a highly competitive NIH combined DVM/PhD Medical Scientist Training Program grant. <http://csu-cvmb.colostate.edu/dvm-program/Pages/DVM-PhD.aspx>

We have recently instituted a DVM/MS training program funded by an NIH-DPCPSI-ORIP T32 predoctoral training award established in 2013 (VandeWoude, PI); one student is currently enrolled and scheduled to receive an MS in microbiology in Fall 2015 prior to reentry into the third-year DVM Program. Students are also encouraged to participate in NIH’s Medical Student Research Program and Howard Hughes’ Institute Medical Scholars Program.



CVMBBS DVM Research Training: III. Postgraduate Veterinarian Training in CVMBBS

Graduates of the combined residency training programs (>120) in pathology, microbiology, and comparative medicine have contributed to research at all levels of industry, government, and academics. Residency training for these programs is predominantly supported by CVMBBS. PhD training for these individuals is supported by a variety of sources, including an NIH-DPCPSI-ORIP T32 postgraduate training grant (PI=Edward Hoover), currently in its 14th year. Post-graduate DVM research is described more completely in 12.10.3c.

CVMBBS DVM Research Training: Summary

CSU has a long history of successfully training DVMs for research careers, including predoctoral, combined DVM/PhD and post-DVM/PhD research training. The percentage of professional students in the graduating class who have actively participated in research projects during their professional programs has increased from less than 20% to nearly 30% from 2008-present. Detailed information is presented in Appendix 10.3 Table A and in 10.3.b Table A, Table B, and Figure 2.

12.10.3.c. Describe efforts by the college that facilitate the link between veterinary medical student research and subsequent or concurrent graduate education, and that enhance the impact of college research on the veterinary professional program.

A survey of didactic and practicum instructors in the DVM Program report that 27% of these courses involve interaction with graduate students. (Appendix 10.3.a Table B).

Consistent with its success in attracting extramural research support and outstanding infrastructure, CVMBBS is also a national leader in post-DVM resident and graduate training, with programs in clinical sciences (11 specialty areas); radiology/diagnostic imaging; and radiation oncology, all supported by the Department of Clinical Sciences, James L. Voss Veterinary Teaching Hospital, and CVMBBS Dean's Office. Combined Residency/PhD programs in anatomic/clinical pathology, microbiology, and comparative medicine are supported by the Department of Microbiology, Immunology and Pathology, the CSU Veterinary Diagnostic Laboratories, CVMBBS Dean's Office, and CSU Office of the Vice President for Research. Postgraduate veterinary research training is also supported by an NIH-DPCPSI-ORIP T32 training award centered in MIP. Success in research training for combined students is rooted in the 50-year record of post-DVM/VMD graduate training in CVMBBS. In the three decades from 1980-2010, 115 DVM/VMDs received graduate degrees in the DMIP program alone (81 PhD, 34 MS). DVM trainees have been supported by NIH T32 and F32 National Research Service Awards, R01 grants, K11, K08, and K01 Mentored Clinical Scientist Awards, and other extramural and intramural funding sources. Major indicators of success in the post-DVM NIH T32 training grant include successful recruitment and retention of 26 trainees since inception (12 years); attainment of the PhD by all (16 of 16) eligible trainees who have completed the program to date – seven of these 16 have received NIH K career development awards while still in the program, nine of whom are appointed in junior faculty-level positions focusing on research; and the generation of ≥90 scientific publications. The program's multidisciplinary approach to investigation of disease mechanisms has been fostered by involvement of all four of the CVMBBS departments. An external review of this program by the training program conducted in 2012 by eminent DVM/PhD scientists experienced in such training yielded laudatory comments. The primary suggestion of this panel was to highlight postgraduate career options for veterinary researchers at institutions other than veterinary colleges.

Extramural and intramural research programs in CVMBBS have significant impact on the professional program in a variety of ways. As noted previously, a strong faculty mentor base allows students to engage in combined DVM/PhD, summer predoctoral, one-year predoctoral, and post-DVM research opportunities.



12.10.3.d. Describe college research seminars and presentations for DVM students, including the number of internal and external speakers, endowed research lectureships, DVM student research seminars, DVM student poster presentations, and college research days and awards and presentations made by veterinary medical students at scientific meetings or seminars at external sites.

Guest lecturers from academic institutions, federal and state agencies, nonprofit institutions, and industry have presented seminars in the required course, Foundations of Veterinary Medicine. From 2012-2014, 16-19 lecturers (1/2 to 1/3 external) have participated in this course each year (Appendix 10.3.a Table A). Groups of 12-15 students attend lunchtime discussions with these lecturers. A variety of internal and external speakers participate in College and departmental seminar series each year as noted in Appendix 10.3.d Table A.

CVMBS holds an annual Research Day, providing opportunity for student presentations and awarding of the CVMBS-Zoetis Early Career Research Award; more than 140 young investigators competed with poster and oral presentations in January 2015. VSSP students participate in local and national symposia to present their work, and other venues for student research participation occur in conjunction with mentor activities and at veterinary national venues (Appendix 10.3.d Table A). <http://csu-cvmbbs.colostate.edu/research/Pages/research-day.aspx>



STANDARD 11:

Outcomes
Assessment
12.11.1-12.11.2



Standard 11: OUTCOMES ASSESSMENT

12.11.1. Student educational outcomes must include, but are not limited to:

12.11.1.a. NAVLE school score report data and passage rates over the past five years (Table A)

See Appendix 11.1.a Table A

12.11.1.b. Student attrition rates with reasons (Table B)

See Appendix 11.1.b Table B

We aim to minimize attrition attributed to academic performance and dismissal (whether readmitted or not), and to changes in professional direction that lead students to seek alternative training and/or education. Please refer to Standards 12.7.3 and 12.7.5 for information regarding efforts to enact best practices in admissions, including initiation of MMI interviews aimed at characterizing noncognitive attributes. Together with our holistic approach to review of candidates, we hope to identify students who are most likely to persevere in the program and to be successful graduates. The newly hired program effectiveness coordinator, along with the assistant dean and the Veterinary Admissions Committee, collaborate to generate a mechanism for evaluating our selection process for efficacy in identifying incoming students most likely to realize academic, personal, and professional success. Additionally, the associate dean oversees academic performance of all students, especially in the first semester of the program during which course coordinators report students who fail individual examinations so that timely assistance can be enacted relevant to tutoring, study habits, disability, and counseling.

12.11.1.c. The learning objectives for each of the nine listed clinical competencies, and a summary of the analysis of evidence-based data collected for each of the nine listed competencies used to ensure that graduates are prepared for entry-level practice (please note that a listing of core and elective blocks does not constitute evidence of learning). Evidence of student learning outcomes for clinical competencies must be obtained by direct measures. These may include Capstone experiences, student portfolios, standardized clinical proficiency exams, or other evaluations of clinical performance based on measureable and published program objectives. Indirect measures should not be used as the sole determinants of clinical competency outcomes. Examples include employer surveys and student course or rotation guidelines.

In 2014, the following percentage of faculty rated student preparedness as adequate, very good, or excellent (excluding N/A): incoming freshmen (95%), beginning of second year (98%), beginning of third year (96%), beginning of senior year (94%), and graduating seniors (97%).

One45: One45 is a web-based software tool that assists education programs in scheduling, curriculum management, patient encounter tracking, task cataloging, and data reporting. Student performance within senior practicum is directly assessed by faculty using One45. Each rotation has distinctive learning outcomes that are mapped to each of the nine clinical competencies, and all competencies are covered repeatedly throughout the year. For more information, please see <http://csu-cvmb.colostate.edu/Documents/dvm-outcomes.pdf>, which highlights student learning objectives relevant to each competency. Faculty enter student assessments into One45 using a scale of 1 to 7, with “below,” “meets,” and “exceeds” expectations as broad categories. If a student is found to be deficient in an area at the end of the first week, the faculty will work with the student to improve skills and knowledge during the latter part of the rotation, with the aim of optimizing opportunities for success by the end of the rotation. Each performance category is associated with rubric definitions so that consistent and objective criteria are applied across faculty. The mean scores per competency within a rotation, or across all core rotations, are effective ways to target areas within the curriculum that require alternative or greater emphasis. As evidence of program quality, the One45 data indicate students met or exceeded American Veterinary



Medical Association (AVMA) standards in each of the past five years. While all were rated above average (≥ 5.5), program strengths in anesthesia and pain management, patient welfare, client communications, and ethical conduct were identified.

Junior practicum assessments are not integrated into One45, though some rotations do incorporate student and rotation evaluations outside of One45. In order to standardize and generalize this assessment tool, faculty input was solicited to devise a junior practicum evaluation to be integrated into One45 and implemented in Fall 2015.

Clinical procedures task books: Juniors and seniors are required to complete tasks to a “meets” or “exceeds” proficiency level before a faculty member, intern, resident, private practitioner, or technician will approve the task(s). The observer must directly view the student performing the task and document completion as soon as s/he is reasonably able (not to exceed day’s end). In junior year, students must complete all of the “universal” tasks, and seniors must complete each of the “core” tasks, in addition to those specific to the chosen track. The ability to perform core tasks is considered essential for entry-level veterinarians. While this mechanism assures skill attainment, it does not indicate level of difficulty or skill development over time. Together with a research scientist within the computer science department and our College instructional technology staff, we are investigating the feasibility of changing to an electronic task book that may allow tracking of number of attempts and the level at which each student performed each attempt, for improved trend analysis to better inform potential curriculum modifications. Whether this capability can be incorporated into One45 or requires independent development is currently under study. Task book procedures can be found at <http://csu-cvmb.colostate.edu/Documents/dvm-junior-taskbook.pdf> <http://csu-cvmb.colostate.edu/Documents/dvm-senior-taskbook.pdf>

Course mapping to competencies: An effort has been made to map each of the nine AVMA competencies to DVM courses, identifying the level of mastery associated with each lecture topic/class period. As expected, most of the first two years reflect introductory levels, with opportunities to successfully execute and develop basic knowledge, skills, and abilities thereafter. Communication and surgical skills are two examples of competencies introduced in the first semester of the curriculum, with subsequent opportunities for progressive development in an interactive (communication) and hands-on (surgical skills) venue. With the introduction of course-mapping software, a more comprehensive approach to mapping will be used, allowing more detailed reporting and analysis.

The DVM Steering Committee has begun the process of identifying competencies considered core by individuals within each clinical service (e.g., livestock, neurology, small-animal internal medicine), and aligning those with AVMA competencies, student learning objectives, and industry needs. A multidisciplinary faculty group has also been established to characterize competencies in communication, professionalism, and career/financial knowledge, then work to ensure that the curriculum offers opportunities for actualization of related student learning objectives.

Capstone: Students at CSU take a series of Capstone exams covering the entirety of years one, two, and three. Goals for administration of Capstone examinations were generated by the Curriculum Committee using surveys of faculty and students, and are detailed in the Capstone policy on the DVM Resources Page <http://csu-cvmb.colostate.edu/Documents/dvm-policy-capstone-scoring.pdf>. Briefly, they include student assessment, student application of material, integration of material, and review of material from the previous year. Additionally, with initiation of the University of Alaska Fairbanks/CSU Collaborative Veterinary 2+2 Program, Capstone examinations will be used to measure student preparedness and ensure program effectiveness. Class rank is highly predictive of performance on the closed-book portions of the Capstone exam; thus, the benefit is the similar format to NAVLE and the requisite review of material. Online case-based exams (Capstones I and II) and the Capstone III practical exam provide opportunity for application and integration of material as students engage clinical reasoning skills to manage cases. Collectively, the Capstone exams promote development of all nine clinical competencies. The Capstone Committee is assessing ExamSoft software that we anticipate will improve information about student performance in different subject areas



and across competencies. We are in the process of analyzing historical fourth-year student performance evaluations using the One45 system to determine whether implementation of the Capstone exams changed student performance, and to provide a baseline to which to compare future data. The Capstone exams are under continual review by the Capstone Committee, with consideration of question validity, student feedback, reflection of core competencies, and optimization of format to enhance development of clinical reasoning.

12.11.1.d. Employment rates of graduates (within one year of graduation)

See Appendix 11.1.d Table C.

Intermittent alumni employment data have been captured; for example, a recent survey of our 2013 graduates revealed that all respondents were employed, and half indicated it took less than one month to secure employment. Complete historic five-year data of alumni employment are not available; however, a plan to capture this is under way (please refer to Equifax contract in 12.11.1.h.).

12.11.1.e. Assessments of graduating seniors; and assessments of alumni at some post-graduation point (e.g., three and/or five years post-graduation) assessing educational preparedness and employment satisfaction

Assessments of graduating seniors: In 2014, seniors and alumni were asked to rate how well the curriculum promotes preparedness across AVMA competencies, using a scale of 1 to 7. Details are in Appendix 11.1.e. All competencies scored an average between 4 and 6, reflecting average to above-average preparedness. Students felt least prepared in the area of emergency and intensive care case management, with an average score of 3.46. Also in 2014, faculty were asked to rate senior preparedness in a similar fashion, and generally reflected increased perceived preparedness compared to student perceptions (detailed in Appendix 11.1.e). Comparison with other programs, as well as examination of students seeking internships, may help to define whether a lack of professional confidence, versus a true lack of preparedness, is the issue in need of addressing. Administering assessments as students enter clinical rotations and as they complete their senior years may assist in discriminating how perceptions change with training. Senior student survey data in prior years reflected a lack of satisfaction in employment strategies and professional support; in response, a career development services manager was hired in 2014.

Assessment of alumni: College leadership regularly hosts alumni events at national and state veterinary conferences (e.g., AVMA, Western Veterinary Conference (WVC), American Association of Equine Practitioners, Colorado Veterinary Medical Association (CVMA)), using these events to provide College updates and to stay connected with our alumni base. Programmatic feedback at these gatherings has been informal but has provided useful information regarding student preparedness, the strategic plan, and professional opportunities. Moving forward, in conjunction with our program effectiveness coordinator, career development services manager, and alumni relations team, we will host small discussion groups involving alumni in the last five years to receive programmatic feedback and assist with career placement.

A phone survey of the graduating class of 2013 was conducted 18 months post-graduation with a 30% response rate. Results indicate employment satisfaction is high, with an overall rating of 6 out of 7. Most frequently cited reasons for increased satisfaction include colleagues, population served, and environment/location. Salary and work hours were the most frequently reported factors with which alumni were less satisfied.

A standardized alumni survey for DVM graduates is being created through collaborative efforts of the program effectiveness coordinator, the financial education specialist, and the College advancement office. This survey is designed to assess financial health, professional placement and satisfaction, preparedness, and retrospective views of the benefits and limitations of the CSU DVM educational experience. Challenges inherent to alumni surveys exist in that response rates are low and, once in the professional arena, there are difficulties in discriminating skills obtained as a result of academic training



versus job experience. Achieving optimal response rates requires strategies aimed at early student engagement and demonstration of the value of alumni feedback in enacting constructive change. Surveys that are relevant, short, and personalized yield best results. We plan to strategically limit survey frequency (initially proposed at nine and 18 months post-graduation) and time surveys with communications of important events (e.g., orientation, graduation). Supplemental alumni feedback may be gathered at events such as the WVC and the CVMA annual conference, along with national venues.

12.11.1.f. Assessments of employers of graduates to determine satisfaction with the graduates

Survey of employers: A 2012 survey of CVMA members resulted in 59 responses, with 39% indicating they had hired a CSU graduate (average number of CSU graduate hires = 3.35, median = 3). Most respondents (80%) reported satisfaction with the CSU alumni they had hired. Only two respondents (6.1%) indicated they would not be likely to hire a CSU DVM in the future. In comparison to a 2005 survey, employers reported similar strengths and weaknesses of CSU graduates; please refer to 12.11.2.d for information on how we are addressing the perceived weaknesses. Strengths of our students focused on basic medical knowledge and good communication skills. Understanding that this survey was limited to Colorado employers, an effort to capture a more representative sample of our students' employers will be made annually at the AVMA conference and other national industry venues. In 2015, the alumni survey was edited to include a request for employer contact information for future inquiries. Though optional, more than half of alumni respondents provided this information, enlarging the national employer database for future solicitation of direct feedback on alumni preparedness.

12.11.1.g. Assessments of faculty (and other instructors, for example interns and residents) related to such subjects as adequacy of clinical resources, facilities and equipment, library and information resources, etc.; and preparedness of students entering phases of education

Faculty and staff feedback: A survey was sent to faculty and staff in 2014 gauging perceptions of adequacy of resources and preparedness of students; please refer to Appendix 11.1.g for results.

12.11.1.h. Additional assessment that might assist the college in benchmarking its educational program.

Exit interviews of residents do not include queries regarding teaching resources; plans are under way to begin collecting this information in 2015. The associate dean and DVM services team meet with students twice yearly to hear feedback. The associate dean subsequently incorporates knowledge of best practices, resources, and programmatic objectives to characterize, prioritize, and enact follow-up, and this is communicated to all students. Starting in 2015, Equifax Workforce Solutions will provide direct access to national employment and income data of DVM graduates, and enable monitoring of debt-to-income ratios. The first file will contain historic 10-year data, with annual updates thereafter. Advantages include inclusivity (national data instead of Colorado Department of Labor and Employment), objectivity and accuracy (third-party data instead of self-reported), and reliability (consistent and repeatable information, not reliant on voluntary participation).

12.11.2. Institutional Outcomes

12.11.2.a. Describe how the college evaluates progress in meeting its mission (for example, benchmarking with other institutions, etc.).

The CVMBS mission reflects a commitment to the health of animals, people, and the planet through teaching, research, outreach, and clinical service. A detailed illustration of the CVMBS strategic plan may be found at <http://csu-cvmbs.colostate.edu/college-office/Pages/cvmbs-strategic-plan.aspx>. Examples of continued and novel advancements in the strategic plan as it relates to DVM students include the planned hiring of a One Health director, charged with promoting collaborative and interdisciplinary studies in human, animal, and environmental health. The One Health Initiative is a campuswide effort facilitating coordination of research and teaching among CSU (eight colleges and three schools), government (CDC, NPS, USDA, NWRC, Colorado Department of Agriculture), and industry partners.



In support of this work, the University has initiated a seed-grant program and a dinner lecture series for faculty. Additionally, there is a student One Health Club reflecting strong student representation from CVMBS and other colleges. Well-established instruction in companion animal, livestock, and exotic animal health are evaluated through student and peer evaluation of faculty teaching of didactic courses, student evaluation of clinical and laboratory rotations, cyclical review of the curriculum by the DVM Curriculum Committee, and oversight by faculty innovators and leaders in learning and instruction (CADET, Teaching Academy of the Consortium of West Region Colleges of Veterinary Medicine, DVM Steering Committee). Assessments highlighted in this report reflect our commitment to solicitation of input from students, alumni, faculty, and staff. Combined with national comparative reports of NAVLE pass rates and AAVMC data, a multi-source, broad mechanism exists by which we may define the quality of our DVM educational efforts. Evaluation of faculty research and scholarly activity, integration of DVM students into College laboratories, and training in incorporation of research findings into clinical practice are described in Standard 12.10. Community and professional outreach by faculty and students are evaluated through engagement in nonprofit efforts (Homeless Connect, Pets Forever), clinical specialty associations, professional organizations and student clubs, collaboration with external institutions, and participation in local, national, and international symposia. Excellence in clinical service is ensured through assessments of client satisfaction, collaboration with community practitioners, and continual evaluation of production and outcomes as described in Standard 12.4.

The College leadership philosophy is founded in excellence and continuous self-improvement. To that end, we routinely use external advisory panels to help us evaluate our programs and provide expert advisement. Over the last two years, we have hosted multiple external panels in the following areas: overall College assessment (CVMBS deans, AAVMC leadership); DVM/PhD combined program; clinical pathology program; and Veterinary Diagnostic Imaging program. In each case the external panel provided a written assessment of strengths and weaknesses, and we subsequently implemented a variety of improvements to enhance our programs.

12.11.2.b. Describe the adequacy of resources and organizational structure to meet the educational purposes (dean should provide).

Our overall financial philosophy has been to maintain and build our level of programmatic excellence by enhancing resource streams that minimize our need to increase student tuition and reduce our reliance on state funding. We have been very successful in growing both our hospital and diagnostic laboratory service revenue and also have experienced significantly enhanced philanthropic support. There has been an 18% increase in CVMBS revenue over the past five years, with Fiscal Year 2014 reflecting a record high of \$131 million. This was achieved through increases in endowments and gifts, as well as service unit (James L. Voss Veterinary Teaching Hospital, Veterinary Diagnostic Laboratories) revenue amid static research revenue in a competitive funding climate. Subsequently, increased investment in the DVM services team led to the hire of a career development services manager and financial education specialist. The addition of two administrative support positions and the program effectiveness coordinator, as well as augmentation of the student services leader from senior director to assistant dean, allow us to better address daily student needs, enact meaningful outcomes assessment and subsequent responsiveness, and develop best practices in admissions, recruitment, and student wellness as key players in national multi-institutional efforts. The planned hiring of an education development manager reflects a commitment to assisting faculty in teaching innovation and excellence. Recruitment and retention of exceptional faculty is a priority, evidenced through recent hires (Appendix 8.1 Table A). Increased revenues have also been leveraged for facilities improvements of DVM teaching space highlighted in Standard 12.3. Given national concerns about debt-to-income ratio among veterinarians, we strive to maintain DVM tuition rates that are competitive, with increases reflecting needs that cannot be managed through alternative funding sources. Currently, CSU is 12/28 for resident tuition and 4/28 for nonresident tuition. The College structure outlined in Standard 12.1 speaks to the integrated contribution of four departments to DVM teaching, ensuring that students are exposed to a broad range of faculty expertise beyond clinical medicine.



12.11.2.c. Describe outcomes assessed for college activities that are meaningful for the overall educational process (for example, scholarly activity of the faculty, faculty awards, faculty and staff perception of teaching resources, student satisfaction with the educational program, teaching improvement benchmarks, and others). If your program assesses other outcomes, briefly describe the results.

Annual faculty evaluations by department heads chart progress in the areas of teaching, research, and service. Mentoring committees assist new faculty members to meet or exceed standards in each of these areas, in accordance with the relative emphasis defined in his/her position description. Faculty who fall below expectations work with their department head to enact a performance improvement plan, and necessary resources are made available to assist the faculty member. The education development manager (search initiated in January 2015) will partner with individual faculty members to promote teaching innovation and excellence in accordance with individual faculty skills and attributes. The manager will also work closely with incoming faculty and those experiencing instructional challenges, to design strategies to optimize teaching efficacy and success and quantify improvement. The education development manager will collaborate with the program effectiveness coordinator to optimize student learning objectives, develop meaningful measures, and use data to enact targeted improvement. Excellence in teaching is recognized through awards such as the Zoetis Distinguished Veterinary Teacher Award, the Carl J. Norden-Pfizer Distinguished Teacher Award, and the SCAVMA Outstanding Clinical Resident Awards, among others. Two faculty members in CVMBS hold the title of University Distinguished Teaching Scholar; only 12 such individuals exist within the global University community. Additionally, investment in teaching excellence is reflected in the participation of faculty members in national (Teaching Academy of the Consortium of West Region Colleges of Veterinary Medicine) and College (CADET, DVM Steering Committee) organizations. Programs such as the Robert H. and Mary G. Flint Animal Cancer Center, Gail Holmes Equine Orthopaedic Research Center, Veterinary Communication for Professional Excellence, Bud and Jo Adams Equine Reproduction Laboratory, and the emerging One Health Institute, reflect faculty expertise and success in developing singular opportunities in research and clinical training for our DVM students, as well as responsiveness to changes within the veterinary profession.

As noted, faculty and staff were surveyed regarding adequacy of resources, facilities and equipment, caseload, and student preparedness in 2014; overall findings and responses to areas of concern are detailed in Appendix 11.1.g.

Student perspectives of the DVM Program are solicited through course evaluations, clinical rotation evaluations, forums, and student representation on the DVM Curriculum Committee and faculty search committees. Students may provide feedback regarding fulfillment of the AVMA standards for accreditation through course/instructor surveys. Additionally, a mechanism for students to provide anonymous feedback is located on the DVM Student Resources page at <http://csu-cvmb.colostate.edu/dvm-program/Pages/dvm-student-resources.aspx>, and is advertised via e-mail to all students and through announcements during first-year orientation and student forums. During the first-year DVM student orientation, detailed in standard 12.6.5, faculty mentors interact closely with incoming students and established student leaders in a small-group setting, demonstrating directly and through modeling a culture of transparency, receptivity, and respect for the individual's unique contribution to the CSU community. Surveyed graduating seniors rate the educational program on factors such as quality of instruction, facilities and equipment, faculty-student interactions, tracking and elective options, support services, and skill acquisition. Seniors generally rate their satisfaction with the overall four-year experience at an average of 5 on a scale of 1 to 7. While most students say they would pursue DVM training again if given the choice, those who said they would not overwhelmingly cited debt load and other stressors. Methods of querying alumni regarding post-graduation perspectives on preparedness, professional satisfaction, and financial condition historically have been of limited usefulness because of low reporting rates, intermittent application/use, and suboptimal engagement of alumni. To address this, the program effectiveness coordinator has designed an initial strategy outlined in 12.11.1.e.



12.11.2.d. Describe how outcomes findings are used by the college to improve the educational program (give examples).

The 2012 curricular review that spanned the four-year program revealed overlap and content deficits that continue to be addressed. Examples of changes resulting from this exercise are highlighted in Appendix 9.2. In 2008, AVMA site visitors recommended that students' evaluation of clinical rotations be incorporated into a web-based system. Senior students have conveyed and received feedback via One45 since the 2010-2011 academic year; the junior practicum assessment will be standardized and generalized with integration into One45 in Fall 2015. With identification of limited opportunities for competency nine development, Veterinary Science: Research and Methods was approved as a required course in 2010-2011. Student feedback of clinical rotations within One45, as well as direct feedback to the third- and fourth-year DVM student coordinator, revealed a suboptimal student experience within equine rotations. As a result, the section head requested a global review of all equine services; the faculty member conducting the review interviewed students and faculty, and worked with the section head, a professional facilitator, clinical faculty, and the associate dean to enact concrete changes beginning with the large-animal emergency medicine rotation. Subsequently, student reviews within One45 and feedback provided to the student coordinator reflect greater number and quality of learning experiences, with improved overall satisfaction. Feedback from students led to the standardization of the SOAP assignment in the Foundations course; additionally, implementation of small-group, hands-on laboratory sessions in Foundations courses improved the timeliness and number of opportunities for development of surgical skills, small- and large-animal handling, and physical examination techniques.

Employers and students have provided survey and direct feedback reflecting a need for more robust training in surgery, primary care, dentistry, and/or business experience. The commitment to development of basic surgical competency is strong; within the Foundations of Veterinary Medicine series approved as core curriculum in 2009-2010, first- and second-year students are progressively introduced to instrument handling, soft tissue dissection, suturing, and midline abdominal closure. Partnerships with humane societies in Larimer, Weld, and Cheyenne counties continue to ensure opportunities for junior and senior students in assisting with and performing spay/neuter procedures. Members of the Student Chapter of the Association of Shelter Veterinarians join with clinical faculty to participate in the Humane Society of Boulder Valley's Spay Day in February, providing opportunities for all students in surgical preparation and assistance.

International outreach opportunities have been expanded to include veterinary service-learning experiences through the CSU Todos Santos Center on Baja California peninsula in Mexico, announced in 2014 and still under development <http://todossantos.colostate.edu/>. DVM student opportunities through this program are evolving and include expanded spay/neuter surgical experiences, community volunteerism, and involvement in higher-education partnerships aimed at improving international veterinary medicine and heightening the role of veterinarians in public health.

In relation to primary care, the hiring of a second community practice faculty member in 2008 allowed for more consistent offering of the rotation and an increase in the number of animals served. Additionally, the junior community practice rotation was increased to two weeks compared to the historical one-week duration; students assume primary responsibility for nonemergent and wellness cases, providing opportunities for development of case management and clinical reasoning skills prior to the fourth year. Additional training in primary care is offered through outreach opportunities, such as Project Homeless Connect and Channel 9 Pet Health Check, and through externships at PetAid Colorado, the latter being a nonprofit clinic for underprivileged and at-risk pets created by the Colorado Veterinary Medicine Foundation.

Increased emphasis on clinical reasoning for each year of the curriculum is detailed in Standard 12.9.1 (Goal 2). Recent faculty hires in dentistry and oral surgery will augment training relevant to both large- and small-animal species. The third-year course, Practice Management/Professional Development, combined with the multidisciplinary faculty Professionalism



Group and recent hire of the career development services manager and financial education specialist, reflect ongoing responsiveness to student and alumni feedback. Additionally, views expressed by the Colorado Cattlemen's Association and Colorado Livestock Association identified the need for improved recruitment, preparation, and retention of livestock-oriented veterinary students. In addition to incentives currently in place (see Standard 12.7.3 FAVCIP), outreach to livestock-oriented alumni was initiated in early 2015 to determine current job placement, professional satisfaction, quality of life, and likelihood of future livestock practice. An annual dinner and discussion series for large-animal veterinarians, beef producers, food-safety experts, and beef-industry leaders began in 2013 to strengthen connections with the beef industry.

Additionally, faculty and administrators from CVMBS and the College of Agricultural Sciences have established an annual meeting with representatives from industry, government, and production to actualize improvements in veterinary services. A combined DVM and MS in animal sciences is in development, projected to begin in Fall 2016.

The associate dean conducts biannual forums with DVM students; reports are subsequently distributed to all students that describe actions taken in response to student feedback.

Recommendations: Planned improvements in outcomes assessment relevant to specific areas are highlighted above. In general, assessments independent of one another have historically occurred, but a strategy is under way to align and streamline these into a cohesive, meaningful process, with leadership by the program effectiveness coordinator hired in November 2014. Inventory of items currently assessed and cross-referencing efforts across the DVM Program are the initial steps, with identification of measures relevant to all stakeholders following. A timeline of specific assessments key to benchmarking the program's progress will be outlined. Additionally, evaluation of assessment tools is under way, aimed at optimizing functionality, user interface, reporting, and in-tool editing to enhance our assessment capabilities. Development of student learning objectives within all courses and rotations, with links to Capstone learning objectives and ultimately to program goals, is essential. Efforts are under way to provide a specific and consistent location in which these may be stored; the change from RamCT to Canvas in 2015 warrants close examination of resource capabilities for best practices.

APPENDICES

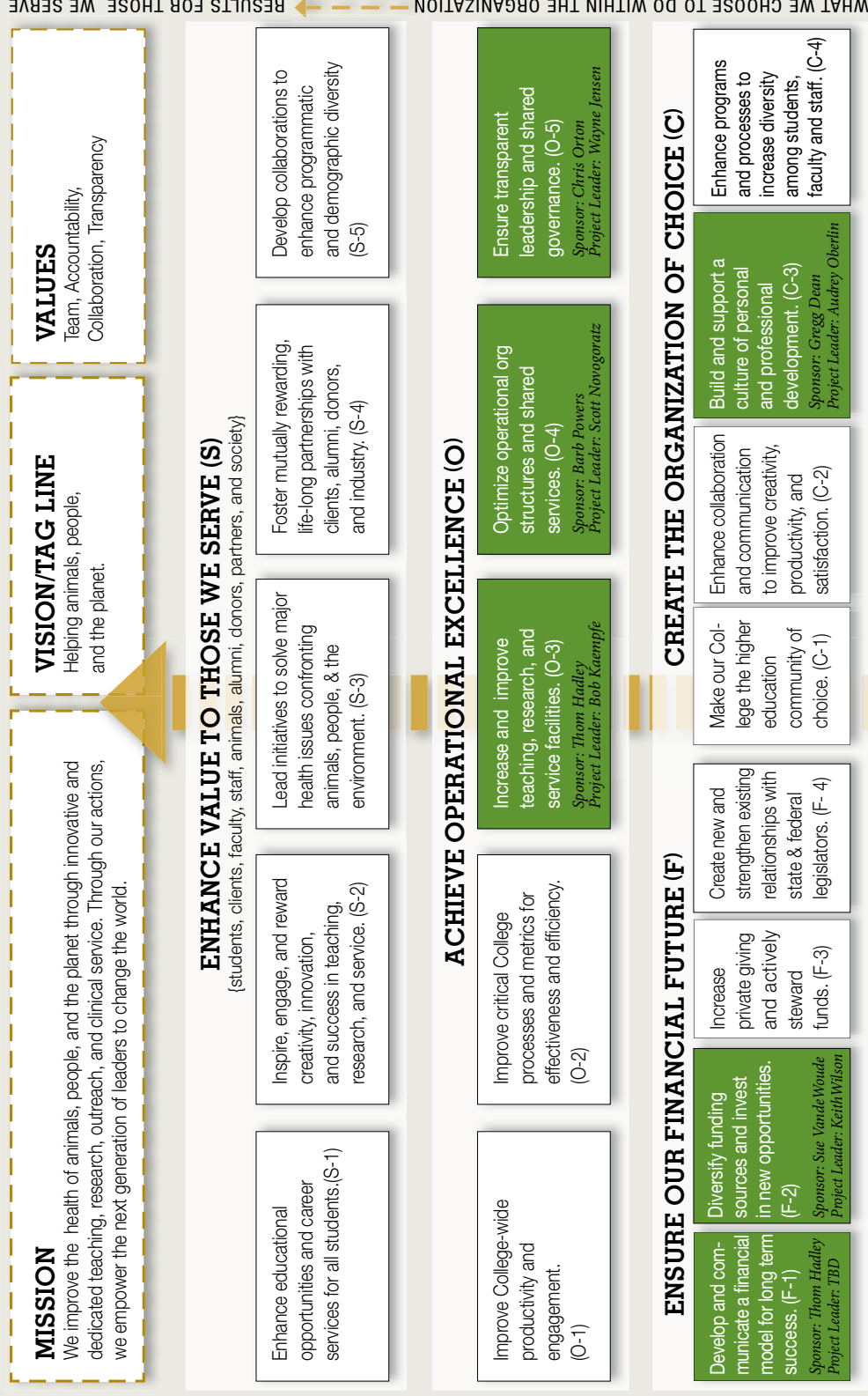




Colorado State University

COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES

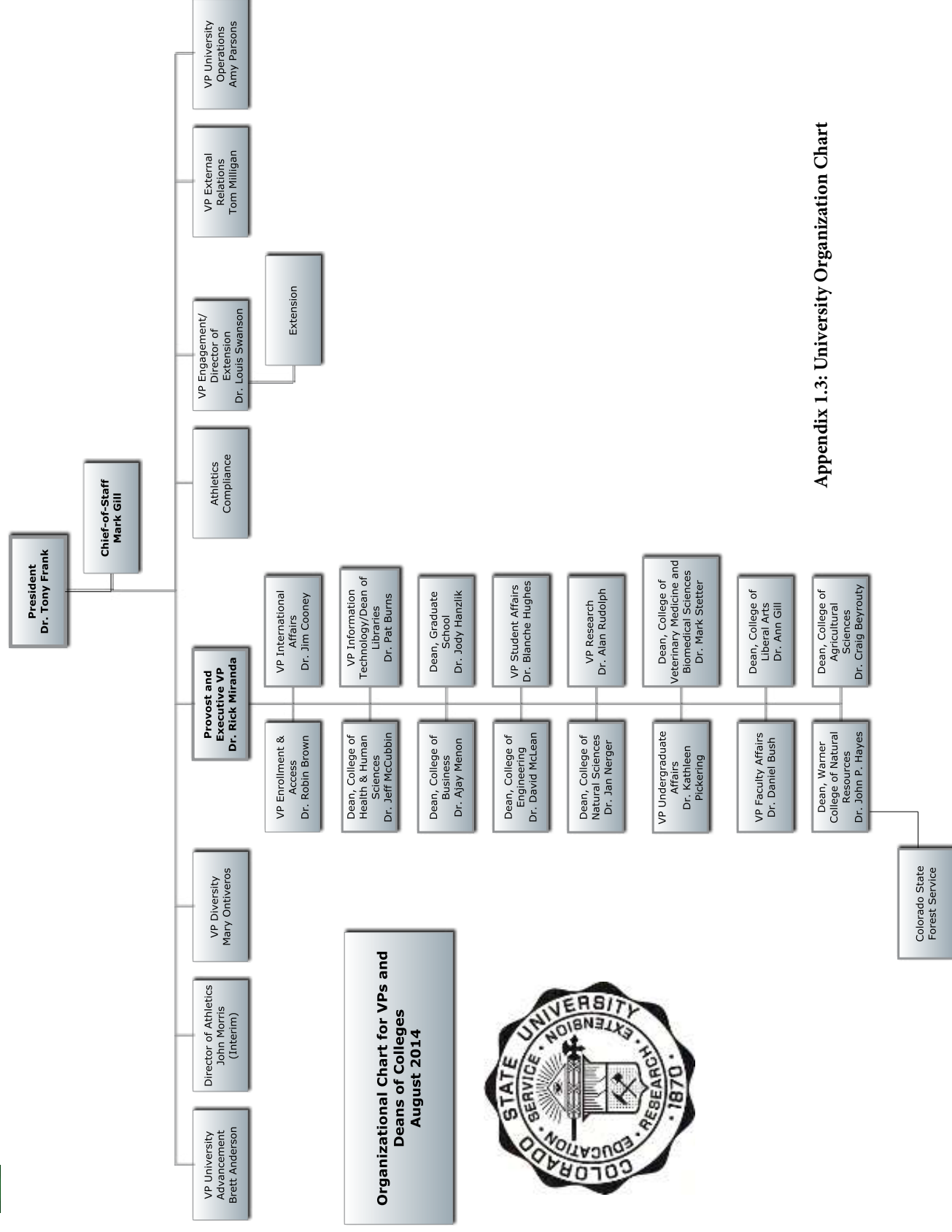
JANUARY 2015



2015 Priorities will be in Green



Appendix 1 >> ORGANIZATION



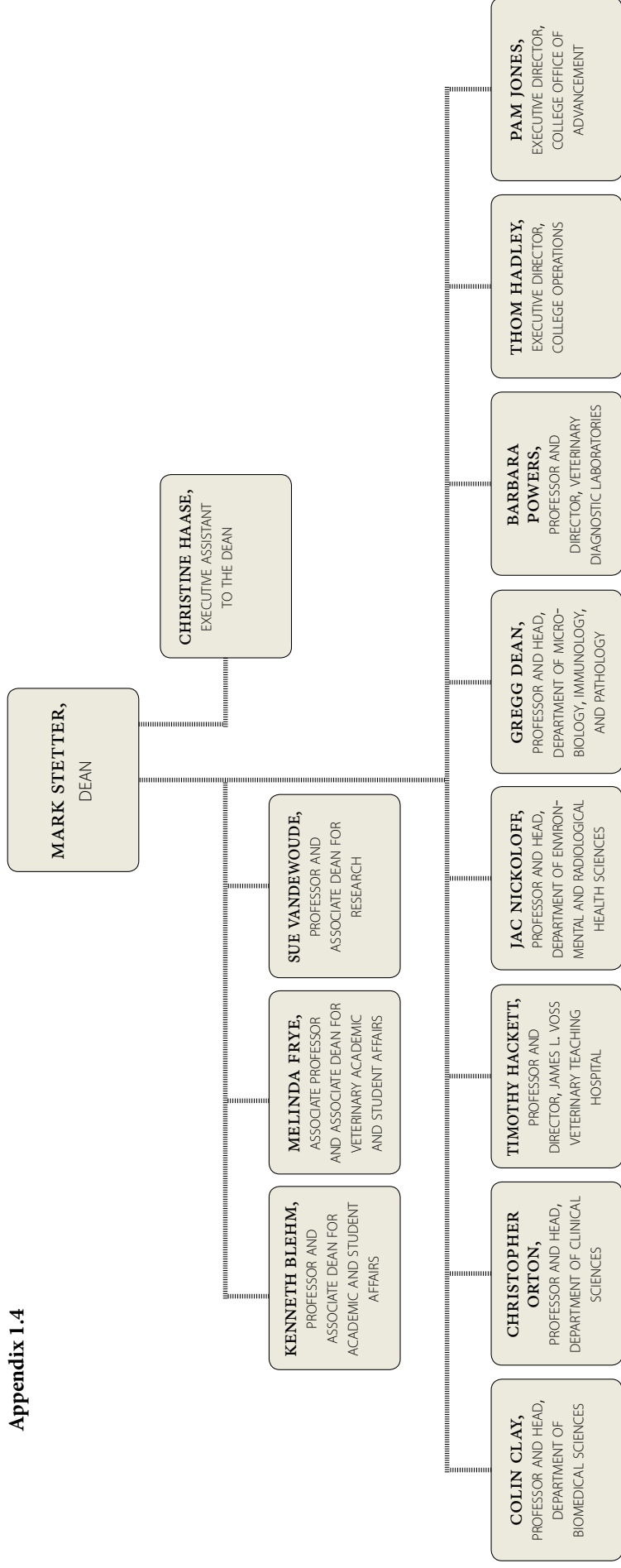
Appendix 1.3: University Organization Chart



College of Veterinary Medicine and Biomedical Sciences

ORGANIZATION - UPPER ADMINISTRATION

Appendix 1.4





Appendix 1.5.a: Executive Council



Mark D. Stetter
Dean
DVM



Ken Blehm
Associate Dean – Academic and
Student Affairs
MS, PhD



Melinda Frye
Associate Dean – Veterinary
Academic and Student Affairs
DVM, MS, PhD



Sue VandeWoude
Associate Dean – Research
DVM



Colin Clay
Head – Biomedical Sciences
PhD



Gregg Dean
Head – Microbiology, Immunology
and Pathology
DVM, PhD



Jac Nickoloff
Head – Environmental and
Radiological Health Sciences
PhD



Chris Orton
Head – Clinical Sciences
DVM, MS, PhD



Barb Powers
Director – Veterinary Diagnostic
Laboratories
DVM, MS, PhD



Tim Hackett
Director – James L. Voss Veterinary
Teaching Hospital
DVM, MS



Thom Hadley
Executive Director – Operations
MBA



Pam Jones
Executive Director – Advancement
MBA



Appendix 1.5.b

College Research Council

Susan Tsunoda
Gerrit Bouma
Dawn Duval
Barbara Biller
Jennifer Peel
Tom Johnson
Mark Zabel
William Schountz
Sue VandeWoude (ex officio)

Veterinary Admissions Committee

Paul Avery
Lora Ballweber
Andrea Bohn
Gary Mason
Charles Davis
Angela Marolf
Howard Liber
Gabriele Landolt
Terry Campbell
John Kisiday
Catriona MacPhail
Craig Webb
James Madl
Christianne Magee
Terry Engle
Whitney Miller
Christie Long
Christine Hardy (ex officio)
Lori Kogan (ex officio)
Aubrey Lavizzo (ex officio)
Cindy Pickens (ex officio)

Veterinary Curriculum Committee

Todd Clapp
Christianne Magee
Kristy Dowers
Dave Van Metre
Jamie Custis
Marie Legare
Colleen Duncan
Linda Vap
Lori Kogan
John Arnold
Cynthia Powell
Sherry Stewart (at-large faculty)
Melinda Frye (ex officio)
Jamie Fouty (ex officio)
Tim Hackett (ex officio)
Deb Liptak (ex officio)
Grace Wilson (ex officio)
plus student from each DVM class

DVM Steering Committee

Christine Hardy
Anne Avery
Laurie Fonken
L. Ray Whalen
Kristy Dowers
Rebecca Ruch Gallie
Jane Shaw
Lori Kogan
Lora Ballweber
Jamie Custis
Pat Cole
Erica Suchman
Dave Van Metre
Jamie Fouty
Melinda Frye (ex officio)



Appendix 2.1

College of Veterinary Medicine and Biomedical Sciences - All Funds

Direct and Indirect Expenses

Table A1

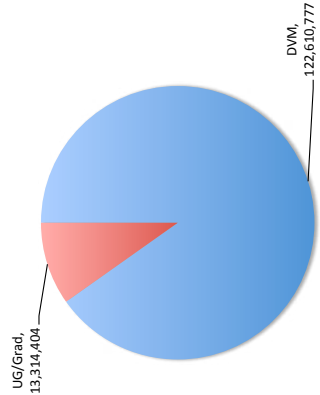
Year	Instruction	Academic Support	Student Services	Services of Educational Activity						Sponsored Student Aid	Sponsored Research	Other Sponsored Activity	Ext. & Public Service	TOTAL DIRECT EXPENSES
				Teaching Hospital			Other							
				Diagnostic Lab	Amount	Type	Amount	Type	Amount					
2009-2010	\$ 28,571,669	\$ 5,992,584	\$ 140,695	\$ 12,770,125	\$ 6,141,047	\$ 3,394,006	Animal Health & Disease/Racing	\$ 765,147	\$ 769,849	\$ 48,845,558	\$ 9,166,880	\$ 946,898	\$ 117,504,458	
2010-2011	\$ 29,509,487	\$ 5,984,497	\$ 142,645	\$ 13,024,614	\$ 5,765,056	\$ 3,991,303	Comm/Ctr for Env	\$ 967,759	\$ 340,543	\$ 45,997,831	\$ 9,124,295	\$ 967,167	\$ 115,815,198	
2011-2012	\$ 31,558,329	\$ 7,929,822	\$ 145,788	\$ 14,794,863	\$ 6,209,276	\$ 3,094,401	Med/ Equine Res	\$ 862,215	\$ 282,162	\$ 42,985,788	\$ 9,134,384	\$ 901,150	\$ 117,898,177	
2012-2013	\$ 31,966,768	\$ 9,800,361	\$ 166,237	\$ 15,904,328	\$ 6,873,573	\$ 2,133,420	Lab/ Infectious	\$ 853,860	\$ 283,947	\$ 44,834,831	\$ 9,005,974	\$ 770,213	\$ 122,593,511	
2013-2014	\$ 35,718,575	\$ 14,362,290	\$ 312,706	\$ 17,355,453	\$ 7,130,372	\$ 3,679,222		\$ 1,042,113	\$ 218,351	\$ 44,723,093	\$ 10,404,362	\$ 978,643	\$ 135,925,180	
% change over 5 years	25%	140%	122%	36%	16%	8%		36%	-72%	-8%	13%	3%	16%	

Revenue

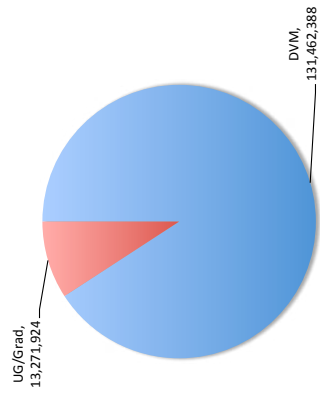
Table B1

Year	University Allocation	Benefits	Tuition & Fees	Is tuition estimated amount?	Endowment Income (current year)	Gifts for Current Use	Sponsored Program Income/Cost Recovery	SALES and SERVICE				Reserves and Transfers	TOTAL REVENUE
								Teaching Hospital	Diagnostic Lab	Other Sources from Sales & Services	Other		
2009-2010	\$ 9,996,931	\$ 8,125,644	\$ 16,375,271	No	\$ 2,681,601	\$ 5,671,156	\$ 57,459,506	\$ 1,328,441	\$ 12,286,696	\$ 4,508,735	\$ 2,921,100	\$ (451,697)	\$ 120,903,384
2010-2011	\$ 8,888,290	\$ 8,578,140	\$ 18,129,630	No	\$ 8,063,608	\$ 5,295,049	\$ 53,712,340	\$ 1,506,971	\$ 13,103,437	\$ 4,380,297	\$ 2,864,167	\$ (1,863,514)	\$ 122,658,415
2011-2012	\$ 9,248,015	\$ 9,294,229	\$ 19,243,705	No	\$ (2,751,103)	\$ 6,041,283	\$ 49,197,293	\$ 1,549,049	\$ 14,419,282	\$ 5,304,949	\$ 1,862,023	\$ 1,028,837	\$ 114,437,563
2012-2013	\$ 14,009,392	\$ 9,291,569	\$ 20,400,203	No	\$ 3,319,210	\$ 6,511,120	\$ 50,620,450	\$ 1,858,446	\$ 15,344,084	\$ 5,627,835	\$ 2,446,696	\$ (584,108)	\$ 128,844,897
2013-2014	\$ 16,660,617	\$ 9,990,991	\$ 20,831,825	No	\$ 5,497,986	\$ 11,120,467	\$ 50,034,019	\$ 2,140,794	\$ 17,926,501	\$ 5,882,111	\$ 2,816,665	\$ 1,832,337	\$ 144,734,312
% change over 5 years	67%	23%	27%		105%	96%	-13%	61%	46%	30%	-4%	506%	20%

Veterinary Medicine vs. Undergraduate/ Graduate Expenses



Veterinary Medicine vs. Undergraduate/ Graduate Revenue



Tables A1 and B1

CVMBS Expenses and Revenue



College of Veterinary Medicine and Biomedical Sciences - DVM Only

Appendix 2.1

Direct and Indirect Expenses

Table A2

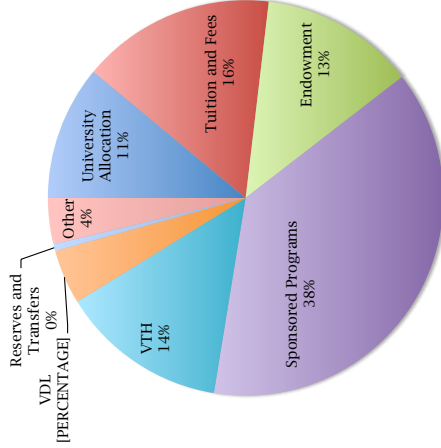
Year	Instruction	Academic Support	Student Services	Services of Educational Activity						Sponsored Student Aid	Sponsored Research	Other Sponsored Activity	Ext. & Public Service	TOTAL DIRECT EXPENSES
				Teaching Hospital			Other							
				Teaching Hospital	Diagnostic Lab	Amount	Amount	Type	Un-sponsored Student Aid					
2009-2010	\$ 20,680,067	\$ 5,542,933	\$ 140,695	\$ 12,770,125	\$ 6,141,047	\$ 3,126,906	Animal Health & Disease/Racing	\$ 765,147	\$ 769,849	\$ 48,690,982	\$ 9,122,320	\$ 946,898	\$ 108,696,969	
2010-2011	\$ 21,395,637	\$ 5,587,521	\$ 142,645	\$ 13,024,614	\$ 5,765,056	\$ 3,565,455	Comm/Ctr for Env Med/ Equine Res	\$ 967,759	\$ 340,543	\$ 45,828,318	\$ 9,086,412	\$ 967,167	\$ 106,671,129	
2011-2012	\$ 22,492,119	\$ 7,192,724	\$ 145,788	\$ 14,794,863	\$ 6,209,276	\$ 2,596,884	Lab/ Infectious	\$ 862,215	\$ 282,162	\$ 42,816,879	\$ 8,992,466	\$ 901,150	\$ 107,286,526	
2012-2013	\$ 22,489,439	\$ 9,117,813	\$ 166,237	\$ 15,904,328	\$ 6,873,573	\$ 1,865,307		\$ 853,860	\$ 283,947	\$ 44,574,912	\$ 8,944,232	\$ 770,213	\$ 111,843,860	
2013-2014	\$ 23,966,319	\$ 13,479,574	\$ 312,706	\$ 17,355,453	\$ 7,130,372	\$ 3,253,531		\$ 1,042,113	\$ 218,351	\$ 44,490,760	\$ 10,382,954	\$ 978,643	\$ 122,610,777	
% change over 5 years	16%	143%	122%	36%	16%	4%		36%	-72%	-9%	14%	3%	13%	

Revenue

Table B2

Year	University Allocation	Benefits	Tuition & Fees	Is tuition estimated amount?	Endowment Income (current year)	Gifts for Current Use	Sponsored Program Income/Cost Recovery	SALES and SERVICE				Reserves and Transfers	TOTAL REVENUE
								Teaching Hospital	Diagnostic Lab	Other Sources from Sales & Services	Other		
2009-2010	\$ 2,108,944	\$ 6,500,515	\$ 16,375,271	No	\$ 2,681,601	\$ 5,671,156	\$ 57,459,506	\$ 1,328,441	\$ 12,286,696	\$ 4,508,735	\$ 2,921,100	\$ (79,624)	\$ 111,762,341
2010-2011	\$ 1,278,099	\$ 6,862,512	\$ 18,129,630	No	\$ 8,063,608	\$ 5,295,049	\$ 53,712,340	\$ 1,506,971	\$ 13,103,437	\$ 4,380,297	\$ 2,864,167	\$ (1,729,462)	\$ 113,466,648
2011-2012	\$ 1,425,240	\$ 7,435,383	\$ 19,243,705	No	\$ (2,751,103)	\$ 6,041,283	\$ 49,197,293	\$ 1,549,049	\$ 14,419,282	\$ 5,304,949	\$ 1,862,023	\$ 1,176,360	\$ 104,903,465
2012-2013	\$ 5,529,915	\$ 7,433,255	\$ 20,400,203	No	\$ 3,319,210	\$ 6,511,120	\$ 50,620,450	\$ 1,858,446	\$ 15,344,084	\$ 5,627,835	\$ 2,446,696	\$ 162,393	\$ 119,253,607
2013-2014	\$ 6,896,822	\$ 7,593,153	\$ 20,831,825	No	\$ 5,497,986	\$ 11,120,467	\$ 50,034,019	\$ 2,140,794	\$ 17,926,501	\$ 5,882,111	\$ 2,816,665	\$ 722,046	\$ 131,462,388
% change over 5 years	227%	17%	27%		105%	96%	-13%	61%	46%	30%	-4%	1007%	18%

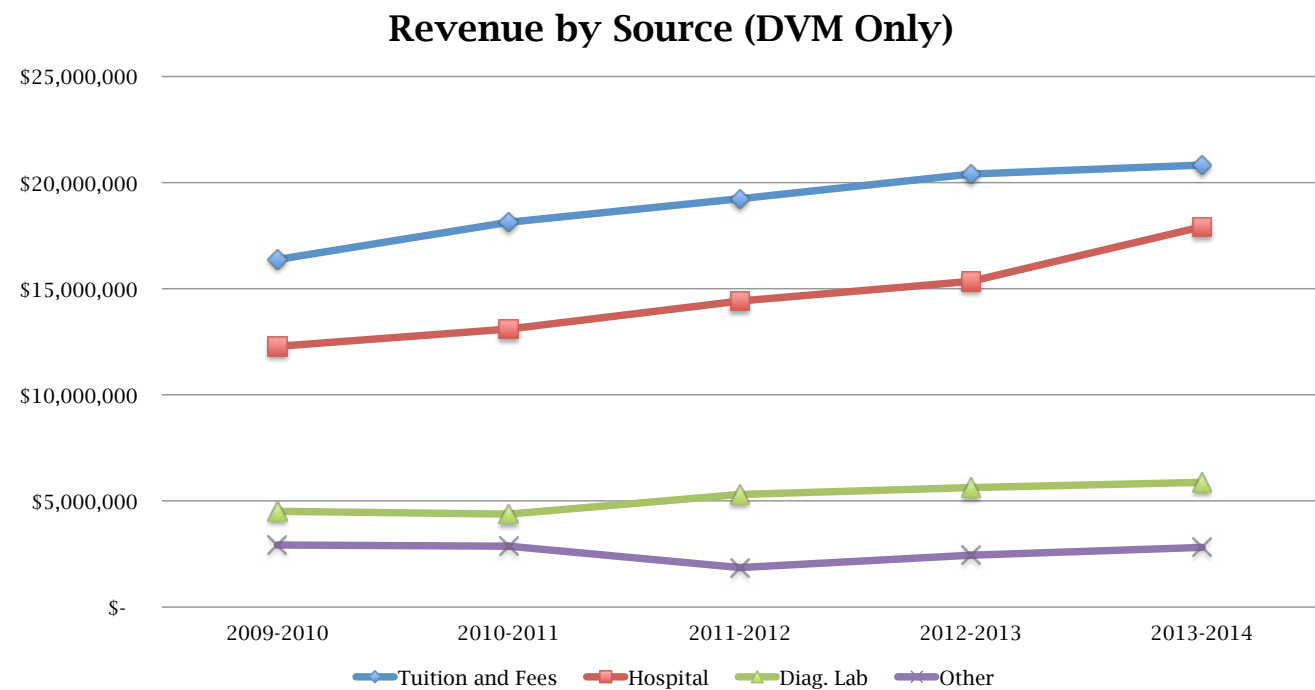
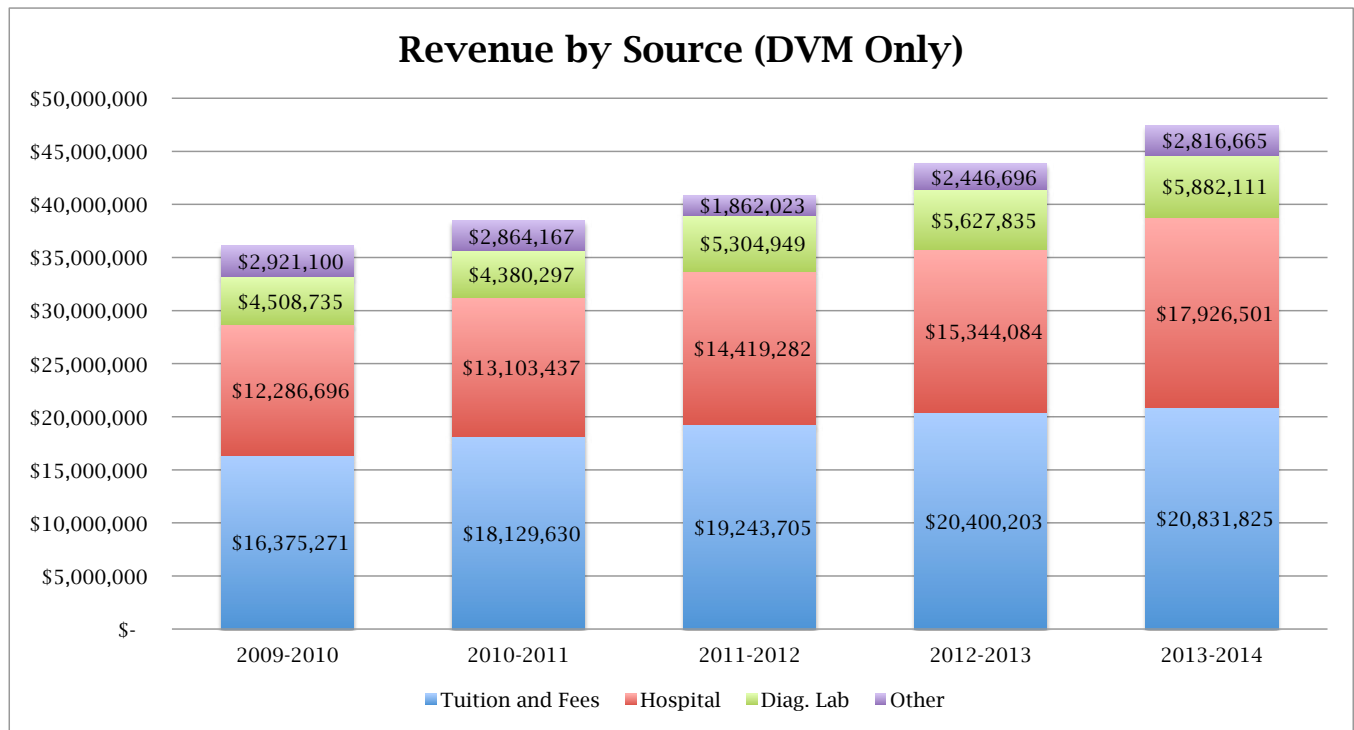
Revenue % by Source



Tables A2 and B2
DVM Program-Expenses and Revenue



Appendix 2.3





Appendix 3.1.a

CVMBS Buildings and Size by Square Footage (SF) Assigned

Campus	Building	Assignable SF	SF Assigned to Teaching	SF Assigned to Research	Administrative & Other Misc.
Main	Anatomy/Zoology (West)	48,021	21,423	20,160	6,438
	Pathology	35,217	7,996	23,074	4,147
	Microbiology	47,391	13,348	26,435	7,608
	Environmental Health	12,035	2,628	5,689	3,718
	Molecular and Radiation Biology	24,147	3,302	16,996	3,849
South	James L. Voss Veterinary Teaching Hospital	96,168	80,499	3,869	11,800
	Robert H. and Mary G. Flint Animal Cancer Center	21,935	10,749	8,643	2,543
	Veterinary Diagnostic Laboratories	57,075	13,564	8,161	35,350
	563 Gail Holmes Equine Orthopaedic Research Center	11,989	1,654	9,810	525
	557 Orthopaedic Research Lab	4,009	495	3,257	257
	544 Animal Population Health Institute Lab	3,485	455	2,581	449
Foothills					
	1379 Bud and Jo Adams Equine Reproduction Lab	8,664	2,136	1,288	5,240
	1402 Animal Reproduction and Biotechnology Lab	27,083	3,450	13,912	9,721
	1421 Arthropod-borne and Infectious Disease Lab	8,804	368	7,668	768
	1422 Infectious Disease Annex	9,297	479	5,953	2,865
	1401 Animal Disease Lab	7,055	1,237	3,092	2,726

NOTE: Building names in **bold italic** font are affiliated with the DVM program and on the site tour.
Assignable SF accounts for service, teaching, research, and areas not assigned.

Additional facilities include six mare barns capable of housing 112 horses in individual stalls, a 10-stall stallion barn, and two buildings housing additional mare exam areas. A total of 12 outdoor paddocks are available that can house up to 250 mares used for research or as embryo/oocyte recipients. Approximately 500 client-owned horses are examined annually at the Bud and Jo Adams Equine Reproduction Laboratory.



Appendix 3.1.b

CVMBBS facilities not associated with the DVM Program

Foothills Campus

Animal Reproduction and Biotechnology Laboratory (ARBL): ARBL is an interdepartmental program focusing on research, teaching, and service in the area of reproductive biology of domestic animals. ARBL faculty include members of three departments in two colleges. The ARBL facility is home to the lab's director, business officer, and support staff.

B.W. Pickett Equine Teaching and Research Center: The Pickett Center is primarily managed by the College of Agricultural Sciences and, although teaching of DVM students does not occur within this facility, CVMBBS faculty participate in the teaching of undergraduate students in the Equine Science Program.

Arthropod-borne and Infectious Diseases Laboratory (AIDL): The AIDL houses approximately 30 researchers who concentrate on the prevention, diagnosis, and control of mosquito-borne encephalitis, yellow fever, dengue, hantaviruses, parasitic diseases, and Lyme disease. Researchers at this facility interact with local laboratories of the Centers for Disease Control and Prevention and the U.S. Department of Agriculture.

Infectious Disease Annex (IDA): The IDA is on the western side of the Foothills Campus. This building houses Microbiology, Immunology and Pathology (MIP) research staff and supports the AIDL in its mission.

Main Campus

Physiology Building: The Physiology Building is home to the Department of Biomedical Sciences main office (department head, assistant department head, business officer, and support staff), as well as several neuroscience faculty, Environmental Health and Radiological Sciences (ERHS) faculty, and teaching labs.

Microbiology Building: The Microbiology Building is home for research and classrooms for microbiology faculty within the MIP department.

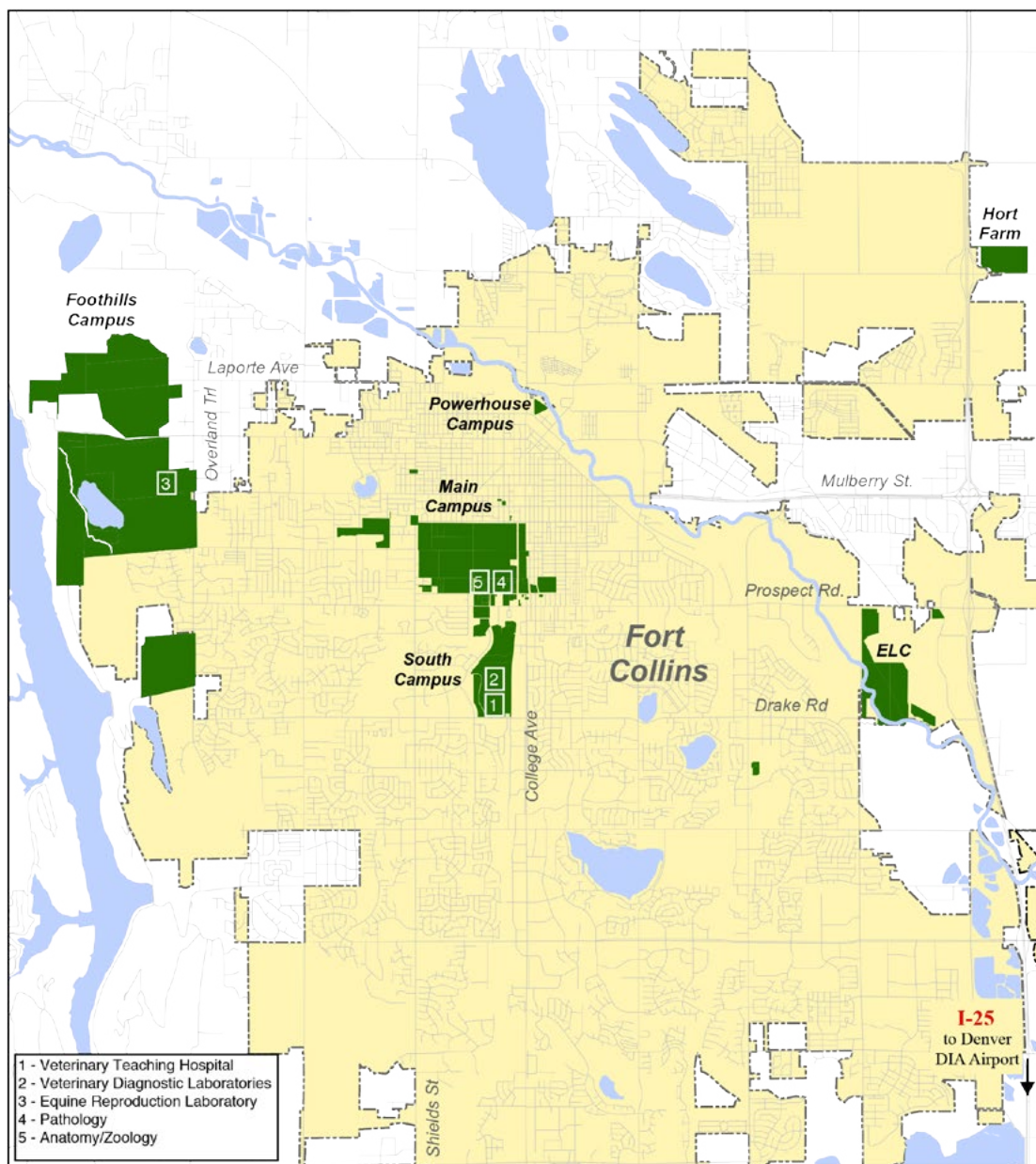
Molecular and Radiological Biosciences (MRB) Building: The MRB Building is home to the Health Physics group within the ERHS department.

Environmental Health (EH) Building: The EH Building is home to the Environmental and Radiological Health Sciences group within the ERHS department.



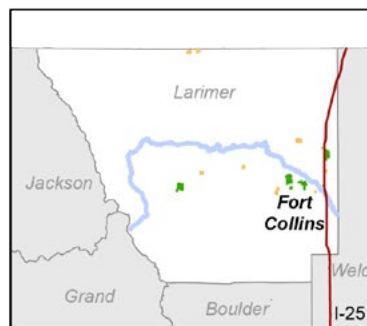
Fort Collins Vicinity

Appendix 3.2



CSU Campuses

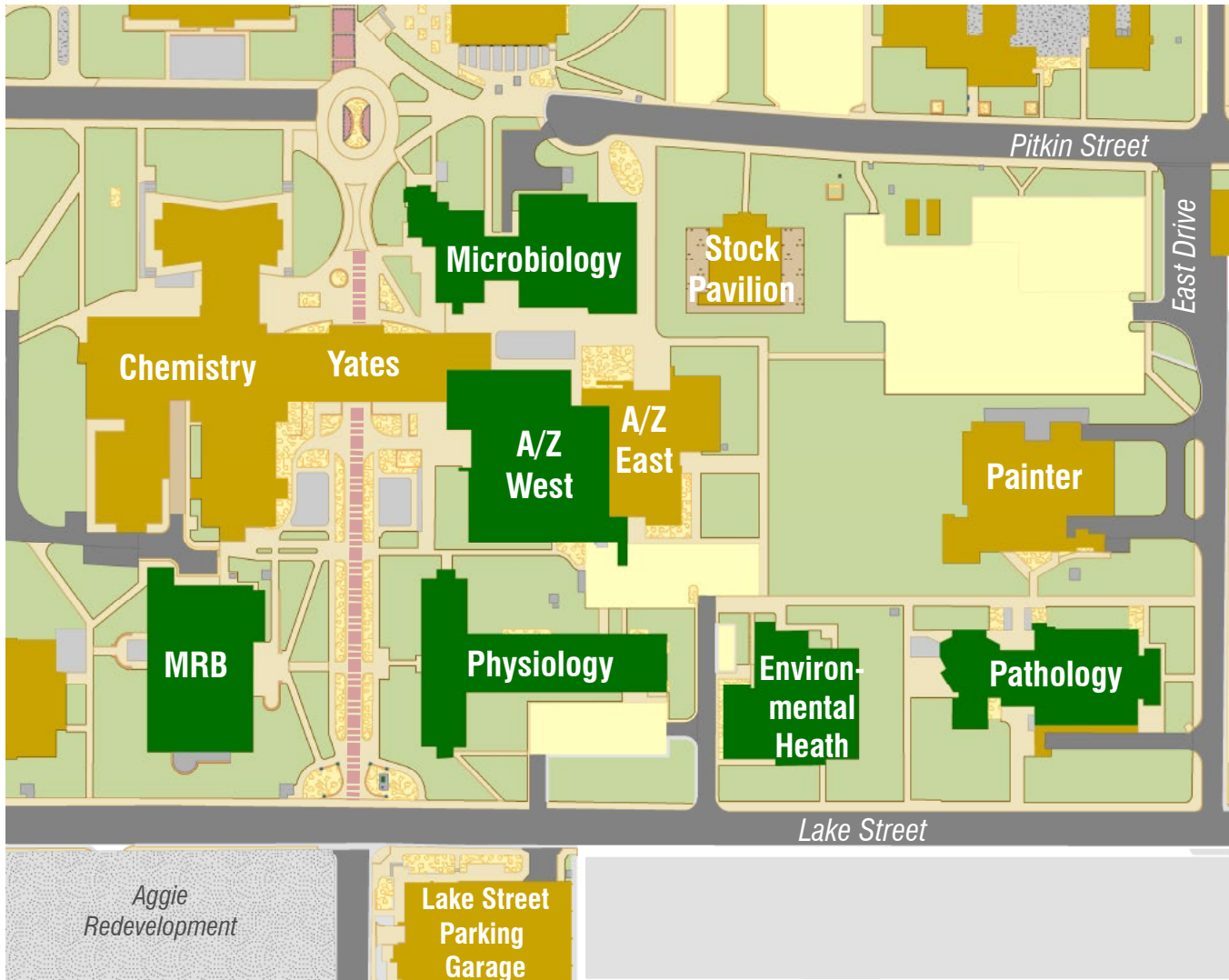
City Limits for Fort Collins, Wellington, and Timnath





Main Campus

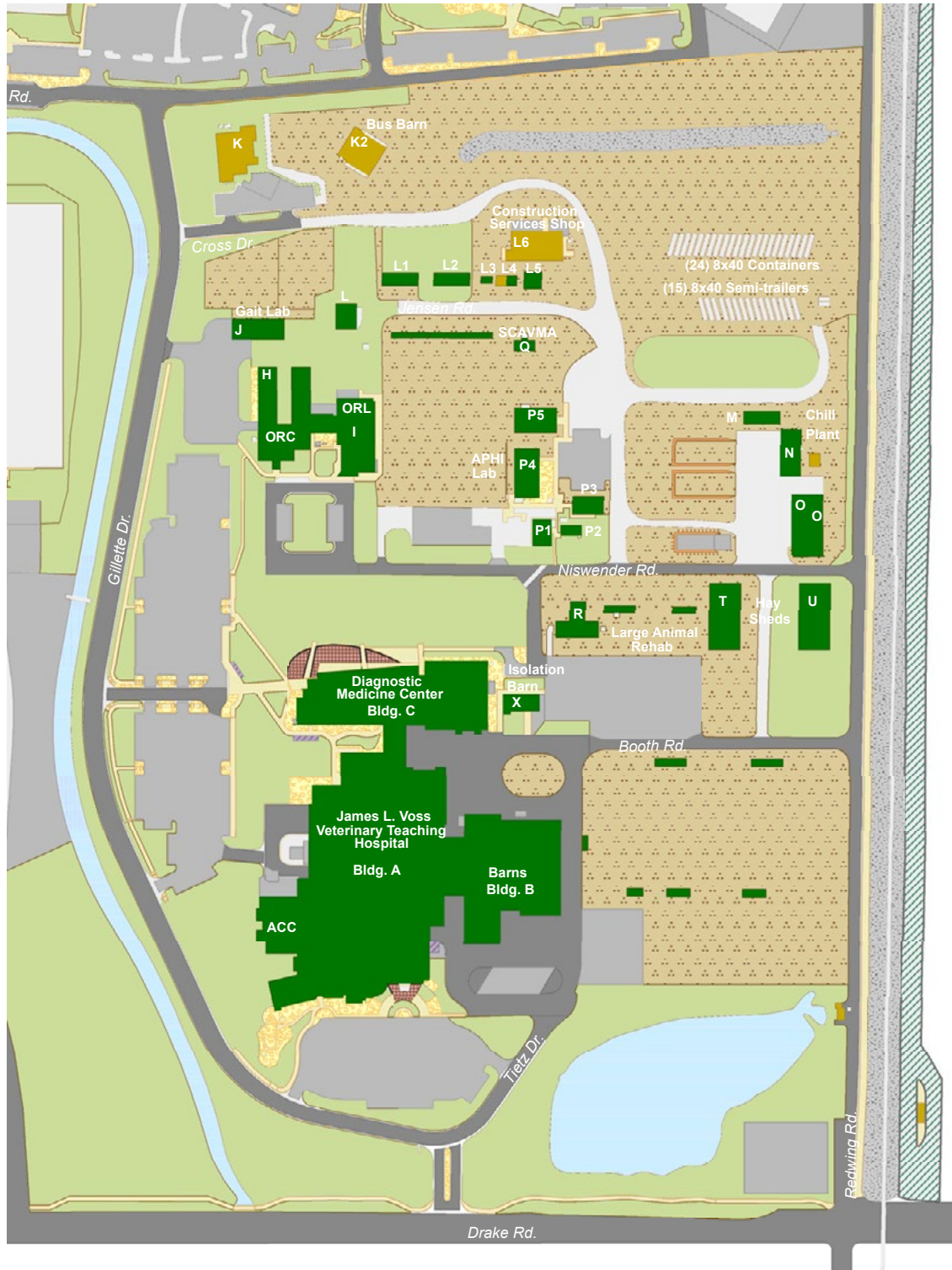
Appendix 3.2





South Campus

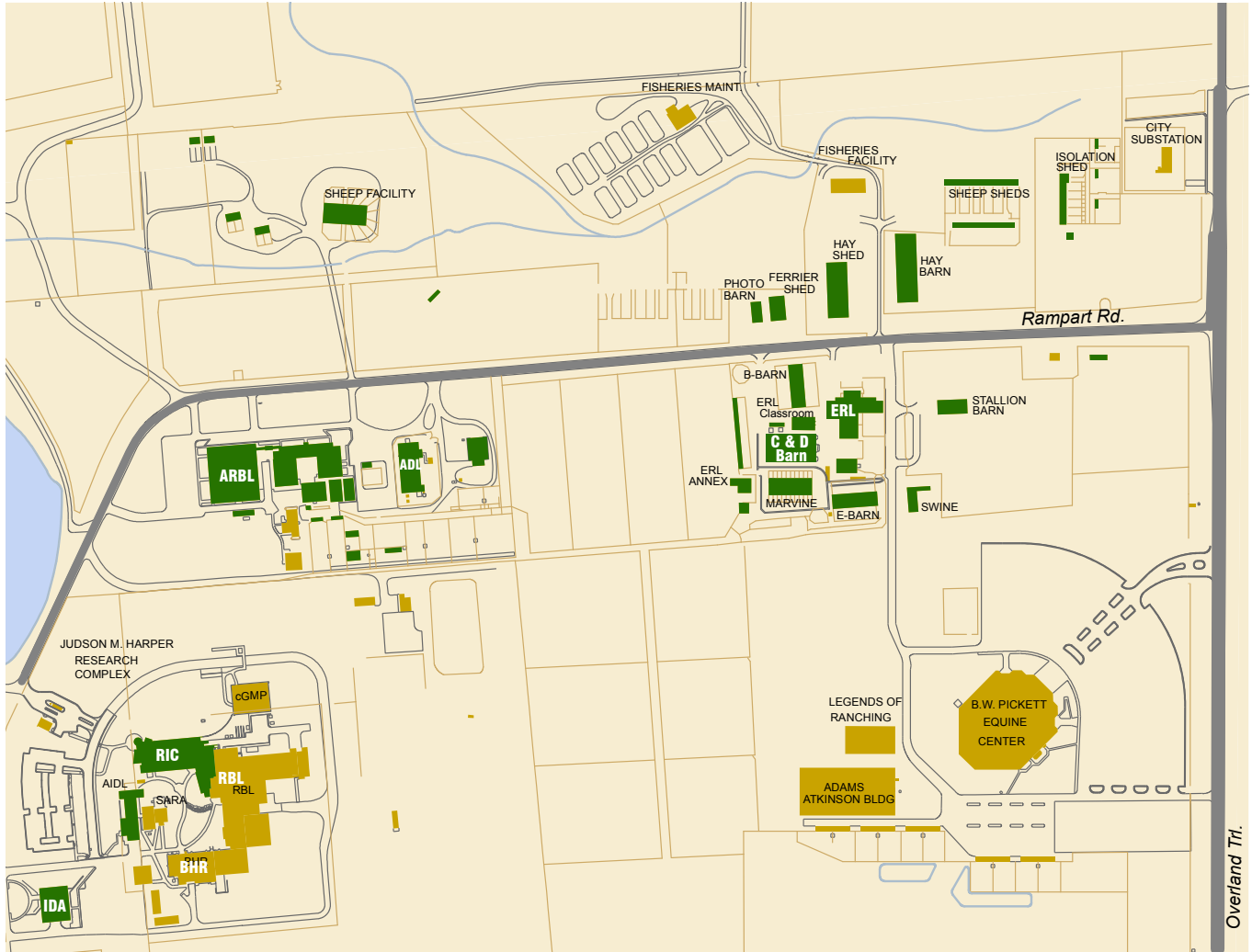
Appendix 3.2





Foothills Campus

Appendix 3.2





Appendix 3.5

CSU VTH Contagious & Zoonotic Disease Matrix		Communication (use sticky note)				Required Precautions*				Major Host Species																
Syndrome	Agent / Disease	Frequency that Agent is Confirmed or Suspected at VTH or VDL	Reportable in Colorado	Route of Infection	Zoonotic Disease Potential	Infection Risk to People	Consequences in People	Environmental Persistence	Bite / Scratch Concern	Human Pregnancy Concern	Diagnostic Testing Required	Isolation Required	Face Shield Recommended	Respiratory Protection	Barrier Nursing & Special Attention to Environmental Hygiene Required	Horses	Camelids	Cattle	Small Ruminants	Pigs	Dogs	Cats	Small Mammals	Birds	Reptiles & Chelonians	Wildlife
Gastrointestinal	Anthrax (<i>Bacillus anthracis</i>)	V. Rare	x	R,O,C	x	H	H							x	x	x	x	x	x	x	x	x	x	x	x	
	Bovine Viral Diarrhea Virus	Common		O							x ₁	x ₁		x ₁				x	x	x	x	x	x	x	x	
	Campylobacteriosis (<i>C. coli</i> , <i>C. jejuni</i>)	Moderate		O	x	M	M	L		x	x	x		x				x	x	x	x	x	x	x	x	
	Canine Distemper Virus	Rare		R							x	x		x				x	x	x	x	x	x	x	x	
	Canine Parvovirus	Moderate		O		H					x	x		x												
	<i>Clostridium difficile</i>	Moderate		O	x	H	M	H			x ₁	x ₁						x	x		x	x	x	x	x	
	<i>Clostridium perfringens</i>	Common		O	x	L	M	H						x ₁				x	x	x	x	x	x	x	x	
	Coronavirus (not infectious between most host spp)	Common		R,O										x ₁				x	x	x	x	x	x	x	x	
	Cryptosporidium (not all biotypes are zoonotic)	Common		O	x	H	M	H			x ₁	x ₁	x ₁					x	x	x	x	x	x	x	x	
	Shiga Toxin producing <i>Escherichia coli</i> (O157, etc)	Common	x ₃	O	x	M	H						x						x	x						
	<i>Escherichia coli</i> – toxigenic (K88/K99/H5)	Moderate		O										x					x	x	x					
	Giardia Spp (not all biotypes are zoonotic)	Common		O	x	L	M	L			x	x		x					x	x	x	x	x	x	x	
	John's (<i>Mycobacterium paratuberculosis</i>)	Moderate	x	O			H																			
	Rotavirus (not infectious between most host spp)	Common		O			H							x ₁					x	x	x	x	x	x	x	
	Salmonellosis (<i>Salmonella enterica</i>)	Common	x ₁	O	x	M	M	M			x	x	x						x	x	x	x	x	x	x	x
Respiratory	Anthrax (<i>Bacillus anthracis</i>)	V. Rare	x	R,O,C	x	H	H			x	x	x	x	x	x				x	x	x	x	x	x	x	
	<i>Bordetella bronchiseptica</i>	Common		R	x	L	L	L			x			x					x	x	x	x	x	x	x	
	Canine Distemper Virus	Rare		R			L			x	x		x									x		x		
	Equine Viral Arteritis	Common	x	R,C			L							x												
	Equine Herpesvirus (Type 1 or 4)	Common	x ₃	R			L			x	x		x					x	x							
	Feline Calicivirus	Common		R			H							x									x			
	Feline Rhinotracheitis Virus (FHV-1)	Common		R			L						x										x			
	IBR (Bovine Herpes Virus - type 1)	Common		R			L							x					x							
	Influenza Virus (generally not infectious between spp)	Variable by host		R	x ₁	L	L	L		x ₁	x	x		x ₁				x				x	x	x	x	x
	Plague (<i>Yersinia pestis</i> -- rodent fleas)	Rare	x	R,O,C,V	x	H	H	L			x	x		x												
	Psittacosis (<i>Chlamydophila psittaci</i>)	Rare	x	R	x	M	H	L		x	x	x	x												x	
	<i>Rhodococcus equi</i>	Rare		R,O	x	L	L	L						gloves												
	Strangles (<i>Streptococcus equi equi</i>)	Common		R			M				x	x		x												
	Tuberculosis (<i>Mycobacterium tuberculosis</i> , <i>M. Bovis</i>)	V. Rare	x	R,O,C	x	L	H	H		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Skin and Soft Tissue Infections (Including Surgical Site Infections)	<i>Corynebacterium pseudotuberculosis</i>	Rare		C,V	x	L	L	H		x				x					x	x	x	x			
<i>Dermatophilus congolensis</i>		Moderate		C	x	L	L	L						gloves												
Dermatophytosis (ringworm: <i>Trichophyton</i> spp, <i>Microsporum</i> spp)		Common		C	x	H	L	M						gloves					x	x	x	x	x	x	x	
<i>Erysipelothrix rhusiopathiae</i>		Rare		O,C	x	L	L	L						gloves						x					x	
Multi-drug resistant bacteria		Common		R,O,C	x	M		var		var				x					x	x	x	x	x	x	x	
Methicillin-Resistant <i>Staphylococcus aureus</i>		Moderate		C	x	M	M	L		x	x			x					x	x	x	x	x	x	x	
Methicillin-Resistant <i>Staphylococcus pseudintermedius</i>		Common		C				L		x				x									x			
Sporotrichosis (<i>Sporothrix schenckii</i>)		V. Rare		C	x	L	M	M	x					gloves					x	x	x	x	x	x	x	
Lice and Mites		Common		C	x	M	L	L												x	x	x	x	x	x	
<i>Corynebacterium pseudotuberculosis</i>		Rare		C,V	x	L	L	H		x				x					x	x	x	x				
Lymph Node and Other Abscesses	Plague (<i>Yersinia pestis</i> -- rodent fleas)	Rare	x	R,O,C,V	x	H	H	L		x	x	x	x										x	x	x	
	Strangles (<i>Streptococcus equi equi</i>)	Common		R			M			x	x		x													
	Sporotrichosis (<i>Sporothrix schenckii</i>)	V. Rare		C	x	L	M	M	x					x					x	x	x	x	x	x	x	
	Tularemia (<i>Francisella tularensis</i>)	Rare	x	R,O,C,V	x	M	H	L	x	x	x	x	x						x	x	x	x	x	x	x	
	Equine Herpesvirus (Type 1 or 4)	Common	x ₃	R			L				x	x		x												
Fever of Unknown Origin	Equine Infectious Anemia	Rare	x	V			L				x	x		x												
	Influenza (generally not infectious between spp)	Variable by host		R	x ₁	L	L	L		x ₁	x	x		x ₁									x	x	x	x
	Strangles (<i>Streptococcus equi equi</i>)	Common		R			M			x	x		x													
	Plague (<i>Yersinia pestis</i> -- rodent fleas)	Rare	x	R,O,C,V	x	H	H	L			x	x		x									x	x	x	
	Tularemia (<i>Francisella tularensis</i>)	Rare	x	R,O,C,V	x	M	H	L	x	x	x	x	x										x	x	x	
Neurologic	Equine Herpesvirus (Type 1)	Common	x ₃	R			L			x	x		x													
	Canine Distemper Virus	Rare		R			L			x	x		x											x		
	Listeriosis (<i>Listeria monocytogenes</i>)	Moderate		R,O,C	x	M	H	L	x	x	x	x	x						x	x	x	x	x	x	x	
	Lymphocytic Choriomeningitis Virus (LCMV)	V. Rare		O	x	M	H	L	x	x	x	x		x										x		
	Rabies (rabies virus, lyssavirus)	Rare	x	R,C	x	M	H	L	x ₁	x				x						x	x	x	x	x	x	x
Urinary	Leptospirosis (<i>Leptospira</i> spp.)	Common		O	x	M	M	L	x	x	x	x		x					x	x	x	x	x	x	x	
	Lymphocytic Choriomeningitis Virus (LCMV)	V. Rare		O	x	M	H	L	x	x	x	x		x											x	
	Multi-drug resistant bacteria	Common		R,O,C						var				var					x	x	x	x	x	x	x	x
Abortion	Brucellosis (<i>Brucella abortus</i> , <i>B. canis</i> , <i>B. melitensis</i> , <i>B. suis</i>)	V. Rare	x ₃	R,O,C	x ₃	M	H	L	x	x	x	x	x													
	Equine Herpesvirus (Type 1)	Common	x ₃	R			L			x	x		x						x	x						
	Equine Viral Arteritis	Common	x	R,C			L							x												
	Leptospirosis (<i>Leptospira</i> spp.)	Common		O	x	M	M	L	x	x	x	x		x					x	x	x	x	x	x	x	
	Listeriosis (<i>Listeria monocytogenes</i>)	Moderate		R,O,C	x ₃	M	H	L	x	x	x	x		x						x	x	x	x	x	x	x
Oral Ulcer/ Erosion	Lymphocytic Choriomeningitis Virus (LCMV)	V. Rare		O	x	M	H	L	x	x	x	x		x											x	
	Q fever (<i>Coxiella burnetii</i>)	Common		R,O,V	x ₃	M	H	H	x	x	x	x		x										x		
	Bovine Papular Stomatitis (bovine parapoxvirus)	Common		O,C	x	L	L	L	x					gloves												
	Bovine Viral Diarrhea Virus	Common		O						x ₁	x ₁			x ₁											x	
	Canine Papillomavirus	Moderate		O,C																					x	
Other	Contagious Ecthyma (Orf, ovine parapoxvirus)	Common		O,C	x	M	M	M	x					gloves												
	Vesicular Stomatitis	V. Rare	x	V	x	L	L	L		x	x			x					x	x	x	x	x	x	x	
	Anthrax (<i>Bacillus anthracis</i>)	V. Rare	x	R,O,C	x	H	H			x	x	x	x						x	x	x	x	x	x	x	
	Cat Scratch Disease (<i>Bartonella henselae</i>)	Common		C,V	x	M	M	L	x					x											x	
	Echinococcosis (<i>Echinococcus granulosus</i> , <i>E. multilocularis</i>)	V. Rare		O	x	L	H	H					x	x										x	x	
	Equine infectious anemia	Rare	x	V			L			x	x		x						x							
	<i>Erysipelothrix rhusiopathiae</i>	Rare		O,C	x	L	L	L						gloves					x	x				x	x	
	Feline Immunodeficiency Virus	Common		C																						
	Feline Leukemia Virus	Common		O																				x		
	Hantavirus	Rare		R	x	M	H	L	x ₁		x	x		x										x	x	
	Larva Migrants (<i>Toxocara</i> spp., <i>Ancylostoma</i> spp., <i>Ascaris</i> spp., <i>Baylisascaris procyonis</i> , hookworms)	Common		O	x	L	var	H						x									x	x	x	
	Listeriosis (<i>Listeria monocytogenes</i>)	Moderate		R,O,C	x	M	H	L	x	x	x	x		x						x	x	x	x	x	x	x
	Lymphocytic Choriomeningitis Virus (LCMV)	V. Rare		O	x	M	H	L	x	x	x	x		var											x	
Multi-drug resistant bacteria	Common		R,O,C						var					x					x	x	x	x	x	x	x	
Toxoplasmosis (<i>Toxoplasma gondii</i>)	Common		O	x	L	M	H	x																x		



Appendix 4.1

Table A Part I: Teaching Hospital Caseload

Species	# patient visits				
FY	2009-10	2010-11	2011-12	2012-13	2013-14
Bovine	421	409	346	344	338
Canine	17,453	20,079	21,651	22,570	23,961
Caprine	65	65	68	63	107
Equine	1,878	2,626	2,380	2,036	2,165
Feline	3,065	3,608	3,347	3,672	3,795
Ovine	28	29	49	28	30
Porcine	27	38	43	73	116
Caged Pet Birds	213	221	200	25	204
Caged Mammals	445	531	546	650	563
Avian Wildlife	73	82	119	79	107
Other	331	274	329	418	426
TOTAL	23,999	27,962	29,078	29,958	31,812

Table A Part II: Teaching Hospital Caseload

Species	# hospitalized					# hospital days				
FY	10	11	12	13	14	10	11	12	13	14
Bovine	192	172	138	158	135	428	352	420	303	467
Canine	2,445	2,600	2,822	2,636	2,848	5,125	5,083	6,307	6,386	7,310
Caprine	31	29	20	17	36	91	99	47	55	172
Equine	683	658	606	720	791	2,902	2,635	2,785	3,573	4,123
Feline	551	558	398	443	469	1,143	1,149	2,196	1,298	1,187
Ovine	13	11	8	11	8	35	17	16	36	45
Porcine	4	6	6	5	9	4	18	30	10	14
Caged Pet Birds	26	23	14	18	15	58	57	50	60	40
Caged Mammals	72	42	45	59	37	112	106	72	117	86
Avian Wildlife	6	9	12	3	10	11	18	41	26	19
Other	98	61	74	56	79	450	187	260	482	344
TOTAL	4,121	4,169	4,143	4,126	4,437	10,359	9,721	12,224	12,346	13,807

Table B: Ambulatory/Field Service Program

Species	# farm (site) calls					# animals examined/treated				
FY	10	11	12	13	14	10	11	12	13	14
Bovine-Dairy	277	287	255	310	342	16,611	19,253	23,957	24,330	24,644
Bovine-Beef	119	135	73	85	71	2,792	3,479	2,218	1,974	2,735
Caprine	26	7	4	2	3	55	11	17	19	15
Equine	1,096	858	2,000	1,987	2,231	1,096	858	2,000	1,987	2,231
Camelid	12	32	25	39	34	35	92	59	119	99
Ovine	6	3	3	2	2	47	11	57	101	48
Porcine	0	0	1	1	0	0	0	1	1	0
Other	0	0	0	0	1	0	0	0	0	5
TOTAL	1,536	1,322	2,361	2,426	2,684	20,636	23,704	28,309	28,531	29,777



Appendix 4.1

Table C: Herd/Flock Health Programs

	Clinical Resources for Production Medicine Training
Dairy	The Dairy Field Service provides contracted clinical service for three commercial dairy farms milking 1,350, 950, and 650 cows each. The service provides reproductive management, diagnosis, and treatment of sick cows and calves; consultation on disease outbreaks and control; and provision of treatment and management protocols. Dairy Herd Health Management is a rotation for third-year students that utilizes these dairies and several others in the vicinity. The contract dairies provide access to their cattle for research projects.
Beef Feedlots	The Livestock Medicine and Surgery (LMS) service provides comprehensive herd care for the CSU Agricultural Research, Development, and Education Center (ARDEC). The ARDEC facility has multiple beef cattle feeding units and houses from 500 to 1,000 fed beef cattle at any time. This clinical student rotation includes regular weekly field visits to the CSU ARDEC facility, including its feeder unit. This is part of the senior clinical practicum.
Cow-Calf	The ARDEC facility (described above) maintains a resident instruction beef herd consisting of about 115 breeding cows, six herd bulls, and annual offspring (total herd size, about 300 head). As described above, the LMS rotation includes regular weekly field visits to the CSU ARDEC facility. This is part of the senior clinical practicum. The LMS service also performs pulmonary arterial pressure field testing for beef herds in the local Front Range area. This consists of about 70 herd visits per year, testing more than 2,000 animals. The LMS service also provides services to a variety of local cow-calf herds for a variety of procedures including bull breeding-soundness examination, pregnancy diagnosis, vaccinations, and sick-animal examinations.
Small Ruminants	Lambing Management Rotation is a fourth-year student elective rotation that consists of daily trips from the CSU VTH to a 4,000-head sheep ranch (Warren Livestock) located just north of Cheyenne, Wyo. Students and instructors participate in periparturient health management for the flock, including medical and surgical treatments, dystocia management and postpartum care, immunizations, and neonatal lamb care. Day-to-day tasks vary according to the “caseload,” but year-round flock health management, nutrition, and toxicological concerns for a range lambing operation are covered as well. Under direct supervision of a CSU faculty veterinarian, students make medical decisions and perform treatments. The ranch manager may request assistance in other health management practices, such as castration, tail docking, and investigation of specific health problems. The rotation consists of 20 days of ranch visits. Each day, 20 to 30 individual animals are treated by four to six students, a technician, and a faculty veterinarian conducting/supervising those treatments.
Swine	We currently have very limited herd programs in swine because the majority of herds are in Eastern Colorado. The main swine clinical experience is through the LMS service.
Poultry	None
Fish	Training in fish medicine is part of the Exotics clinical rotation where students have the opportunity to work with a variety of fish at the Downtown Aquarium in Denver. Fish in more than 40 different aquarium systems that range from tropical marine and freshwater; cold marine and freshwater; and brackish habitats are treated for a variety of conditions that include traumatic injuries, infectious diseases, reproductive disorders, and neoplasia. An average of 12 fish patients are seen with each visit. Students learn the important aspects of fish husbandry, especially the maintenance a healthy aquatic environment.
Equine	The Equine Teaching and Research Center houses approximately 70 University-owned horses each year. These are divided to include 30 polo ponies, 10 equine science teaching horses, and 30 “Legends of Ranching” Sale horses. The Equine Field Service provides clinical veterinary care and herd management to all of these horses throughout the year. More specifically, these horses are used for teaching fourth-year veterinary students on the Equine Field Service in the form of wet labs during the year. Those labs include dental exam and procedures, eye exams, lameness exams including perineural anesthesia and joint injection techniques, upper airway endoscopy, radiology, ultrasonography, foot evaluation and care, colic examination, and diagnostics. These practical opportunities are also available to third-year students on independent study and those members of the Student Chapter of the American Association of Equine Practitioners. In addition, the Bud and Jo Adams Equine Reproduction Laboratory (ERL) provides clinical reproduction service to approximately 500 client-owned horses each year. The ERL also owns five stallions and cares for 200 to 300 additional recipient and research mares each year. The large numbers of horses managed at the ERL offers a multitude of herd health opportunities for DVM students, including design and implementation of vaccination and anthelmintic programs, oral examinations and dental care, health examinations of newborn foals, and a wide variety of emergency medical procedures, such as colic, lacerations, and lameness evaluations. These hands-on learning opportunities are available to DVM students on elective senior rotations at the ERL and through Equine Field Service.



Appendix 4.2

Table A: Overview of Clinical Services/Student Rotations

	# Faculty	# Residents	Service Type*	Species**	Surgery
SA Community Practice	2		PC	SA	
SA Medicine	7	5	SC	SA	
SA General Surgery	3	3	SC	SA, Ex	yes
SA Orthopaedic Surgery	4	3	SC	SA, Ex	yes
SA Sports/Med & Rehab	1(3)***	1	SC	SA, Ex	
SA Critical Care/ Emergency	3	4	PC, SC	SA, Ex	
SA Urgent Care	1		PC	SA, Ex	
Spay-Neuter Clinic	1		PC	SA	yes
Oncology (Med & Surgery)	7	6	SC	SA	yes
Radiation Oncology	3	3	SC	SA, E, Ex	
Cardiology	3	3	SC	SA, E, L, Ex	yes
Dermatology	2	2	SC	SA, E, L, Ex	
Dentistry	2	1	PC, SC	SA, E, L, Ex	yes
Neurology	2	2	SC	SA, E, L, Ex	yes
Ophthalmology	2	2	SC	SA, E, L, Ex	yes
Equine Surgery	5	3	SC	E	yes
Equine Critical Care	2	1	SC	E	yes
Equine Sports Medicine	4	3	FS, SC	E	
Equine Ambulatory	2		PC, FS	E	
Equine Medicine	2	1	SC	E	
Equine Reproduction	3	2	PC, SC	E	yes
Livestock Med & Surgery	3	1	PC, SC, FS	L	yes
Beef Field Service	1		PC, FS	L	yes
Dairy Field Service	3		PC, FS	L	yes
Lambing Management	1		PC, FS	L	yes
Exotics	2		PC	Ex	yes
Anesthesia	5	1	Support	SA, E, L, Ex	
Clinical Pathology	6	3	Support	SA, E, L, Ex	
Anatomical Pathology	8	5	Support	SA, E, L, Ex	
Diagnostic Imaging	5	5	Support	SA, E, L, Ex	
Client Support (Argus)	3		Support	SA, E, Ex	
TOTAL	98	60			

* PC = Primary Care, SC = Specialty Care, FS = Field Service

** SA = Small Animal (Companion), E = Equine, L = Livestock, Ex = Exotics/Wildlife/Zoo

*** shared with SA Orthopaedic Surgery



Appendix 5.2

Personnel

Michelle Wilde is the veterinary medicine librarian. She has a B.A. in English from Oregon State University and a Master of Library Science from Indiana University. She has 18 years' experience working with scientific information resources and services.

Dennis Sylvain is the manager of the James L. Voss Veterinary Teaching Hospital (VTH) Library. He has a degree in English from Georgetown University and has more than 30 years' experience providing library services to the students, faculty, and staff at the VTH. Dennis and Michelle cooperatively manage collection development and provide research support and instruction to the faculty, staff, and students.

Jamie Bethel is the learning technology coordinator. He has a Bachelor of Science in business administration from CSU, eight years of teaching computers in private industry, and 16 years facilitating the use of RamCT within CVMBS. His duties include student, faculty, and staff support, as well as planning for upgrades and changes to the Learning Management System.

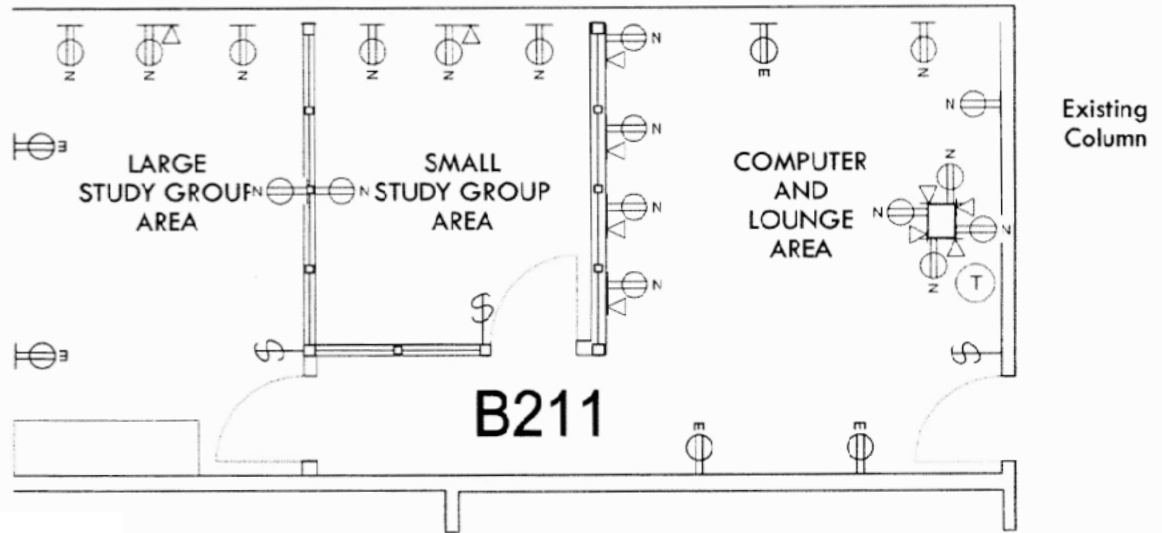
Charlie Kerlee is a medical photographer/media specialist. He works with the faculty, staff, and DVM students, to photograph and create images that are used in teaching, research, and publications. He is available to photograph intra-op, client animals, histology, public relations, and teaching material images. He also works with faculty to create video files used in teaching to create clear and concise presentations with material presented logically and effectively. Charlie has a degree in technical journalism, with an emphasis in photography, from CSU. He has been a photographer for the College for 35 years.

Jay Oaks is a professional/individual contributor II (media specialist) for CVMBS. He works in the Computer Assisted Teaching Support Laboratory, which offers faculty members an open lab space for various multimedia projects. Jay works with faculty and staff to provide RamCT course support and training for the DVM Program and clinical sciences graduate courses. He assists faculty with the creation, setup, and administration of Capstone exam testing for the DVM Program. He provides the College with training and administrative support for classroom and personal capture Echo 360 video recordings. Jay helps faculty, staff, students, and researchers with lectures, presentations, videos, research projects, and papers. He also provides photography support for faculty members when necessary. Jay provides audiovisual support for classrooms and conference rooms in the VTH. He has a Bachelor of Arts in speech communications from CSU and more than 15 years' experience working with instructional technology in a university setting.



Appendix 5.5

VTH Library Group Learning Hub



VET TEACHING HOSPITAL FLOOR PLAN



Appendix 6.1

A. Veterinary Medicine Program

Class	2014	2013	2012	2011	2010
First-year	140	139	140	138	141
Second-year	139	137	132	140	138
Third-Year	131	132	138	140	132
Fourth-year	130	139	141	132	133
# Graduated	137	141	129	133	132

2009-2010

B. Interns, residents, and graduate students (enter each person in only one category) per year for last five years

Department	#Interns	#Residents	#Resident-MS	#Resident-PhD	MS	PhD
BMS	0	0	0	0	82	21
CS	12*	0	14	0	1	4
ERHS	0	0	3	0	81	31
MIP	0	0	8	5	9	53

2010-2011

Department	#Interns	#Residents	#Resident-MS	#Resident-PhD	MS	PhD
BMS	0	0	0	0	71	19
CS	10*	0	13	0	2	6
ERHS	0	0	6	0	97	29
MIP	0	1	6	6	11	52

2011-2012

Department	#Interns	#Residents	#Resident-MS	#Resident-PhD	MS	PhD
BMS	0	0	0	0	72	21
CS	11*	0	9	0	3	4
ERHS	0	0	6	0	100	31
MIP	0	1	5	9	10	53

2012-2013

Department	#Interns	#Residents	#Resident-MS	#Resident-PhD	MS	PhD
BMS	0	0	0	0	67	19
CS	11*	0	12	0	4	3
ERHS	0	0	5	0	105	36
MIP	0	1	2	11	6	55

2013-2014

Department	#Interns	#Residents	#Resident-MS	#Resident-PhD	MS	PhD
BMS	0	0	0	0	72	18
CS	13*	0	11	0	4	5
ERHS	0	2	5	0	80	36
MIP	0	1	1	12	5	46

*Interns supported by the Voss VTH; the VTH is not a department, but hires and funds interns annually.



Appendix 6.1

C. DVM students per year for the last five years

Academic Year	DVM		
	Total	*Min	%Min
2014	540	103	19.07%
2013	547	97	17.73%
2012	551	89	16.15%
2011	550	89	16.18%
2010	544	99	18.20%

*Min = minority students, as used in the AAVMC Comparative Data Report;

For the purpose of the AAVMC's Comparative Data Report, the "Minority" category refers only to ethnic origin. African-American, Asian, Alaskan Native, Hispanic, Native American, multiethnic individuals, and foreign nationals should be classified under the minority category.

D. Other educational programs

Complete the following table describing enrollment for each of the last five years:

Year	Additional Clinical Year Students* <i>Number enrolled</i>	Veterinary Technician Program <i>Number enrolled</i>	Undergraduate Programs <i>Number enrolled</i>	Ross University <i>Number enrolled</i>
2014	9	32	622	11
2013	8	44	655	9
2012	10	34	629	10
2011	10	29	646	7
2010	13	26	628	6

*represents students admitted for only the clinical year from other accredited and nonaccredited schools

Appendix 6.2

E. Summary of scholarship activity in support of DVM students

Academic Year	Number of Scholarships	Number of Students Awarded	Average Scholarship Amount by student	Average Scholarship Amount by award	Total Scholarship Funding
2014-2015	364	295	\$3,580.14	\$3,901.48	\$1,056,140.00
2013-2014	360	326	\$3,304.99	\$2,992.86	\$1,077,428.00
2012-2013	292	287	\$3,077.01	\$3,024.32	\$883,102.66
2011-2012	325	299	\$2,870.04	\$2,640.43	\$858,141.00
2010-2011	311	291	\$3,174.06	\$2,969.94	\$923,650.07
2009-2010	311	287	\$2,542.42	\$2,346.22	\$729,673.12



Appendix 7.4

Year	State Residents		Non-Residents		Contract Students		Total	
	A/P	O/A	A/P	O/A	A/P	O/A	A/P	O/A
2014	212/75	84/75	1185/37	138*/37	153/26	63/26	1550/138	285/138
2013	250/70	77/70	1230/33	100*/33	176/35	47/35	1656/138	224/138
2012	264/75	80/75	1079/27	135*/27	151/36	50/36	1494/138	265/138
2011	268/75	81/75	1309/40	249/40	187/23	57/23	1764/138	387/138
2010	292/75	80/76	1276/32	96/32	188/31	57/31	1756/139	233/139
2009	266/75	77/75	1387/32	123/32	181/31	48/31	1834/138	248/138
2008	235/75	79/75	1248/25	83/25	204/34	55/34	1687/134	217/134

*does not include initial NS offer(s) that later became a contract offer



Appendix 8.1

Table A: Loss & Recruitment of Faculty

Loss & recruitment of faculty			
FY 2010			
Department	Faculty Lost	Discipline/Specialty	Faculty Recruited
BMS		None	
CS		Neurology	1
		Anesthesia	1
ERHS	1	Toxicology	1
	1	Radiation Cancer Bio	
MIP	1	Anatomic Path	
	1	Immunology	
Total	4		3
FY 2011			
BMS	1	Molecular Trans.	
CS	1	Equine Surgery	
	1	Dermatology	1
	1	Epidemiology	1
		Oncology	1
ERHS	1	Vet Diag Imaging	
		Radiation Cancer Bio	1
		Health Physics	1
		Radiation Oncology	1
		Vet Diag Imaging	1
		Medical Physics	1
MIP		Anatomic Path	1
Total	5		9
FY 2012			
BMS	1	Reproduction	
CS	1	Dentistry	
	1	Equine Immunology	
	1	Food Animal	
	1	Small-Animal Med	
	1	Anesthesia	
	1	Neurology	
		Epidemiology	1
		SA Ortho	1
		Equine Surgery	1
		Critical Care	1
ERHS		None	
MIP		Prion Immunology	1
		Virology	1
		Bacteriology	1
		Mycobacterium TB	1
		Immunology	1
		Prion Immunology	1
Total	7		10



Appendix 8.1

Table A: Loss & Recruitment of Faculty

FY 2013			
BMS		None	
CS	1	Critical Care	
	1	Equine Internal Med	
		Equine Repro	1
		Internal Med	1
		Dairy Herd Health	2
		Oncology	1
		Anesthesia	1
ERHS	1	Epidemiology	
	1	Epidemiology	
	1	Health Physics	
		Vet. Diag. Imaging	1
		Toxicology	1
		Radiochemistry	1
MIP	1	Arbovirus Epi	
		RNA Virology	1
		Avian Diagnostics	1
Total	6		11
FY 2014			
BMS	1	Cardiovascular Physio	1
	1	Cellular Endocrin	
		Anat. Instr. Methods	1
CS	1	Dairy Herd Health	
	1	Ophthalmology	1
		Cardiology	1
		Immuno/Virology	1
		Equine Sport Med	1
		Dentistry	1
		Equine Internal Med	1
ERHS	1	Vet Diag Imaging	
	1	Vet Diag Imaging	
	1	Medical Physics	
		Toxicology	1
		Radiation Cancer Bio	1
		Epidemiology	1
MIP		Clinical Path	2
		Medical Entomology	1
		Micro/Bacteriology	1
		Viral Immunology	1
Total	7		16
Grand Total	29		49



Appendix 8.1

Table B: Staff support for teaching and research

Area	FTE Clerical	FTE Technical	Other
Clinical Teaching	45.256	90.227	15.952
Nonclinical Teaching	133.817	94.079	3.664
Research	4.238	54.043	9.752
Total	183.311	238.349	29.368

FTE definitions (titles) used by CVMBS:

FTE Clerical

Accounting	Coordinator	Office Manager
Administrative	Counselor	Professional/Individual Contributor
Administrative Assistant	Director	Program Aide
Assistant Administrator	General Professional	Program Assistant
Assistant Coordinator	Health Professional	Project/Program Manager
Assistant Director	Information Technology Professional	Records Administrator
Assistant Manager	Information Technology Supervisor	Research Coordinator
Assistant to Dean	Manager	Senior Director
Assistant to Director	Medical Records Technician	Teaching Aide

FTE Technical

Electronic Specialist	Laboratory Technician	Technician
Diagnostic Procedure Technician	Media Specialist	Research Associate
Information Technology Technician	Pharmacy	Research Scientist/Scholar
Laboratory Coordinator	Pharmacy Tech	Senior Research Associate
Laboratory Support	Technical Support	Veterinary Technician

FTE Other

Animal Care	General Labor	Postdoc
Custodian	Machine Trades	Structural Trades
Equipment Operator	Material Handler	

The Colorado State University Office of Human Resources is currently in the process of converting many of the State Classified positions to Administrative Professional categories with new job titles. Due to complexities in the Colorado State University Human Resources system as well as large overlapping responsibilities of various staff employees, it was determined that the split of staff support between nonclinical teaching and research should mirror the College's activities associated with each classification. Nonclinical teaching support comprises 20% of activity outside the DVM Program.



Appendix 8.2

Table C Non-veterinarian Faculty Academic Qualifications

Title	MS	PhD	Board Certified	Board Certified & MS	Board Certified & PhD	Total
Administrator		2			1	3
Professor		36			3	39
Associate Professor	3	33			3	39
Assistant Professor		27			2	29
Instructor	2	1				3
Lecturer						0
Part-time Faculty (less than 75% time)						0
Total	5	99	0	0	9	113

Appendix 8.2

Table D Veterinarians

Title	DVM (only)	MS	PhD	Board Certified	Board Certified & MS	Board Certified & PhD	Total
Administrator					3	4	7
Professor			5	9	9	19	42
Associate Professor	3	1	6	4	3	16	33
Assistant Professor	5	3	8	9	5	13	43
Instructor	1			1		1	3
Lecturer							0
Part-time Faculty (less than 75% time)							0
Total	9	4	19	23	20	53	128



Appendix 9.2

Curricular Changes

Major curricular changes and activities enacted by the DVM Curriculum Committee

<http://csu-cvmb.colostate.edu/employee-resources/Pages/pvm-curriculum-committee.aspx>

2008-2009

- The first Capstone I Examination was administered in September 2008 with an initial pass rate of 92%.
- A weeklong Parasitology laboratory rotation was added as a required junior practicum rotation.

2009-2010

- Junior participation in Community Practice was expanded to include Community Practice Medicine and Community Practice Surgery.
- All senior practicum rotations were made to last two weeks.
- The 4-credit sequence of Foundations of Veterinary Medicine was approved, to begin as a 1-credit experimental course in Fall 2010.

2010-2011

- The College faculty approved a change to eliminate Honors grades in DVM courses, to be replaced by independent study credits.
- The Year 1 VM 603 Veterinary Science: Research and Methods was approved as a required course.

2011-2012

- The committee approved traditional grading (A-F) beginning with the DVM Class of 2016, with transcripts reflecting a DVM GPA and class standing.

2012-2013

- Capstone examination goals were established, incorporating student, faculty, and committee input.
- An elective course for first-, second-, and third-year DVM students in Healer's Art was approved.
- Standardization of DVM letter grades: The Committee recommended that DVM courses be graded without plus/minus indicators and that all courses would use the following grading scale:

$89.5 \leq A < 100\%$
 $79.5 \leq B < 89.5\%$
 $69.5 \leq C < 79.5\%$
 $64.5 \leq U/D < 69.5\%$
 $F < 64.5\%$

2013-2014

- The committee identified areas for possible inclusion as "alternative" or nonpractice emphases, along with key questions regarding structure, faculty incentivization, funding, and designation. A summary document will be conveyed to the DVM Steering Committee.
- In light of the overall move to assignment of letter grades throughout the program (with the exception of junior practicum), the committee voted to retain the letter-grading system in relation to the Capstone exams.

Selected examples of curricular changes enacted as a result of the comprehensive systems review in 2011-2012

Limitation	Response
Excess information about parasite life cycles; inadequate emphasis on common parasites, too much emphasis on obscure parasites	Integration of virtual microscopy and multidisciplinary (parasitology, virology, bacteriology) cases into didactic and clinical offerings
Limited information on both small- and large-animal general dentistry	Addition of AVDC/AVDC-equine boarded faculty member in Dentistry and Oral Surgery, with development of small-animal and equine didactic and clinical offerings
Lack of instruction in equine nutrition	1 hour of equine nutrition instruction incorporated into VM 745 Clinical Sciences I
Information lacking on debt management	Financial education specialist hired January 2015



Appendix 9.6

Curricular Digest: DVM Program Course Work

The prerequisite for all VM courses is admission to the DVM Program. Unless otherwise noted, all other courses do not have prerequisites.

The distribution of credit for lecture-laboratory-discussion or recitation class periods per semester is as follows: in the example 04(2-2-1), the figure outside the parentheses indicates the number of credits assigned to this class. Inside the parentheses, the first figure indicates the number of clock hours spent in lectures each week, the second indicates the number of clock hours spent in laboratory each week, and the third indicates the number of clock hours spent in discussion, recitation, seminar, or internship/practicum each week.

First year – Fall semester

Required

VM 603 01(1-0-0). Veterinary Science: Research and Methods.

Conduct of responsible research, contributions of research to the practice of veterinary medicine, and career opportunities.

VM 606 03(3-0-0). Veterinary Immunology.

Infectious agents, immune-mediated diseases, immune deficiencies, and principles of vaccination.

VM 610 01(.5-1.5-0). Foundations of Veterinary Medicine I.

Development of professional skills (ethics, communication, physical exam, surgical skills) necessary for the practice of veterinary medicine.

VM 616 08(4-9-1). Functional Anatomy.

Embryonic development and organogenesis are incorporated to improve understanding of normal anatomy and common developmental pathologies.

VM 618 07(6-2-0). Veterinary Physiology and Histology.

Gross and microscopic anatomy and physiology of gastrointestinal, cardiovascular, respiratory, hemopoietic, urinary systems in selected domestic animals.

VM 625 02(2-0-0). Principles of Diagnostic Imaging.

Diagnostic film and digital radiography, computed tomography, ultrasound, magnetic resonance, nuclear medicine, and radiographic and sonographic anatomy.

Elective

ACT 205 03(3-0-0). Fundamentals of Accounting.

Understanding of financial statements to support financial and managerial decision making.

First year – Spring semester

Required

VM 611 01(.5-1.5-0). Foundations of Veterinary Medicine II.

Development of professional skills (ethics, communication, physical exam, surgical skills) necessary for the practice of veterinary medicine.

VM 619 04(3-3-0). Veterinary Neurobiology.

Structural and functional foundations of nervous system activity; introduction to clinical neurology.

VM 623 02(2-0-0). Veterinary Nutrition and Metabolism.

Intermediary metabolism, nutrients, and animal nutrition.

VM 637 03(3-0-0). Veterinary Bacteriology and Mycology.

Biology of bacterial and fungal pathogens of animals with emphasis on common infectious diseases encountered in veterinary practice.



VM 638 02(2-0-0). Veterinary Parasitology.

Biology of helminths, arthropod, and protozoan pathogens of animals with emphasis on common infectious diseases encountered in veterinary practice.

VM 639 02(2-0-0). Veterinary Virology.

Biology of viral pathogens of animals with emphasis on common infectious diseases encountered in veterinary practice.

VM 640 05(4-0-1). Biology of Disease I.

Introduction to mechanisms of subcellular, cellular, tissue, and organ response to injury and associated pathological processes.

VM 648/VS 648 02(2-0-0). Food Animal Production and Food Safety.

Basic orientation to food animal production units, herd health concepts, and issues of food safety from preharvest through processing and distribution.

Electives

VM 621 02(1-2-0). Exotic Animal Anatomy and Husbandry.

Applied veterinary anatomy and husbandry of birds, reptiles, amphibians, and fish.

VM 612 01(0-0-1). The Healer's Art.

Exploration of student experiences, beliefs, and values related to their work as veterinary medical professionals.

FIN 305 03(3-0-0). Fundamentals of Finance.

Role of finance in management of the firm; role, structure of financial markets and institutions, valuation of basic securities. Prerequisite: ACT 205 or ACT 210; ECON 204.

Second year – Fall semester

Required

VM 710 01(.5-1.5-0). Foundations of Veterinary Medicine III.

Development of professional skills (ethics, communication, physical exam, surgical skills) necessary for the practice of veterinary medicine.

VM 714 04(4-0-0). Veterinary Preventive Medicine.

Principles of health promotion and disease prevention in populations.

VM 722 04(4-0-0). Veterinary Pharmacology.

Basic and clinical pharmacology, therapeutic practice, and pharmacy management.

VM 724 06(4-0-2). Bioanalytical Pathology.

Mechanisms, interpretation, and applications of laboratory analyses for solving diagnostic problems.

VM 741 04(3-0-1). Biology of Disease II.

Pathogenesis of organ system diseases and integrated systemic pathology.

VM 751 02(2-0-0). Veterinary Clinical Toxicology.

Common toxicants and poisonous plants encountered by companion and farm animal species, their pathophysiological effects, and clinical treatments.

VM 795 01. Capstone Examination I.

Electives

VM 707 01(1-0-0). Emerging Issues in Infectious Disease.

Influence of microbial, host, and environmental changes on the emergence, control, and prevention of infectious disease of veterinary importance.

MGT 305 03(3-0-0). Fundamentals of Management.

Managerial process of planning, directing, and controlling inputs of an organization. Analysis, decision making, and survey of research literature.



Second year – Spring semester

Required

VM 711 01(.5-1.5-0). Foundations of Veterinary Medicine IV.

Development of professional skills (ethics, communication, physical exam, surgical skills) necessary for the practice of veterinary medicine.

VM 726 02(1-0-1). Principles of Imaging Interpretation I.

Clinical indications and interpretation for imaging modalities in examination of body systems.

VM 733 02(2-0-0). Principles of Surgery.

Principles and concepts of general and orthopaedic surgery.

VM 737 03(2-0-1). Principles of Anesthesia.

Integration of physiological and pharmacological principles in clinical anesthesia.

VM 742 03(2-0-1). Biology of Disease III.

Pathogenesis of disease in organ systems, systemic pathology.

VM 744 03(2-2-0). Theriogenology.

Reproductive function and disease, including mammary gland and endocrine regulation of reproduction and lactation.

VM 745 05(5-0-0). Clinical Sciences I.

Diagnostic approaches to common medical problems of cardiovascular, urinary, and digestive-hepatic systems.

VM 747 05(5-0-0). Clinical Sciences II.

Diagnostic approaches to common medical problems of organ systems.

Electives

ANEQ 445 02(1-3-0). Foaling Management.

Management of the foaling mare and newborn foal; monitoring techniques, preventive and emergency care procedures. Prerequisite: ANEQ 344 or DVM sophomore standing.

BUS 205 03(3-0-0). Legal and Ethical Issues in Business.

Ethical, legal, and regulatory issues in the U.S. business environment. Prerequisite: ACT 205 or ACT 210; ECON 204.

VM 612 01(0-0-1). The Healer's Art.

Exploration of student experiences, beliefs, and values related to their work as veterinary medical professionals.

VM 716 01(1-0-0). Principles of Shelter Veterinary Medicine.

Introduces the principles of veterinary shelter medicine. Emphasis on management of small animals with herd health concepts.

Third year – Fall semester

Required

VM 728 02(2-0-0). Principles of Imaging Interpretation II

Interpretation of clinical imaging techniques used in diagnosis of specific diseases of organ systems.

VM 749 05(5-0-0). Clinical Sciences III.

Diagnostic approaches to common medical problems of organ systems.

VM 753 05(5-0-0). Clinical Sciences IV.

Diagnostic approaches to common medical problems of organ systems.

VM 786A 08. Junior Practicum. <http://csu-cvmb.colostate.edu/Documents/dvm-j-p-rotations.pdf>

VM 795 01. Capstone Examination II.



Electives

VM 720 01(1-0-0). Alternative and Complementary Therapeutics.

Mechanisms and efficacy of alternative and complementary therapeutics used in veterinary medicine.

VM 721 02(0-0-2). Non-Mammalian Vertebrate Medicine.

Diagnosis and treatment of diseases of non-mammalian vertebrates.

VM 781A1 01(1-0-0) Veterinary Sports Medicine and Rehabilitation

Provides foundational material required for understanding and applying principles of sports medicine and rehabilitation with a focus on canine and equine athletes.

VM 796J 01(1-0-0). Swine medicine.

Major infectious, nutritional, and toxic diseases of swine; overview of swine production and marketing.

VM 796R 03(3-0-0). Food Animal Clinical Problems.

Diagnostic, therapeutic, management, and monitoring tools used in food animal veterinary medicine.

MKT 305 03(3-0-0). Fundamentals of Marketing.

Overview of marketing activities involved in provision of products and services to consumers, including target markets and managerial aspects. Prerequisite: AREC 202 or ECON 101 or ECON 202.

Third year – Spring semester

Required

VM 712 03(3-0-0). Practice Management/Professional Development.

Veterinary practice management including marketing, finance, information systems, personnel issues, and client relations.

VM 730 02(2-0-0). Applied Animal Behavior.

Identification, characterization, and treatment of common disorders of animal behavior encountered by practicing veterinarians.

VM 786A 06. Junior Practicum. <http://csu-cvmb.colostate.edu/Documents/dvm-j-p-rotations.pdf>

VM 795 02. Capstone Examination III.

Track Selectives

Small Animal Practice Track (Required)

VM 773 04(4-0-0). Small Animal Medicine and Surgery I.

Health management, and diagnosis and treatment of diseases of dogs and cats.

VM 774 04(4-0-0). Small Animal Medicine and Surgery II.

Health management, and diagnosis and treatment of diseases of dogs and cats.

Large Animal Practice Track (Required)

VM 757 03(3-0-0). Bovine Herd Medicine.

Health management, and diagnosis and treatment of diseases of food animals.

VM 763 05(5-0-0). Equine Medicine and Surgery.

Health management, and diagnosis and treatment of diseases of horses.

General Practice Track

Choose a minimum of 7 credits from VM 773, VM 774, VM 757, and VM 763



Electives

VM 612 01(0-0-1). The Healer's Art.

Exploration of student experiences, beliefs, and values related to their work as veterinary medical professionals.

VM 731 02(2-0-0). Biology and Diseases of Small Mammals.

Diagnosis and treatment of diseases of small mammals. (VM 731 credits cannot be counted to fulfill Track Selective requirements.)

Fourth year – Summer-Fall-Spring

Required

VM 786B Variable[1 to 22]. Senior Practicum.

<http://csu-cvmbbs.colostate.edu/Documents/dvm-s-p-rotations.pdf>

Elective (offered Summer-Fall-Spring)

MGT 340 03(3-0-0). Entrepreneurship in the Contemporary World.

Concepts of entrepreneurship and role of entrepreneurs in the economy.



Appendix 10.2.a

Calendar Year	Dept	Total number of faculty	Number of faculty involved in research	Number of faculty (involved in research) teaching in VM	Total Research FTE	Number original, peer-reviewed pubs	Number original book chapters
2012	BMS	37	29	8	15.1	74	3
	CS	91	78	64	27.8	197	82
	ERHS	38	33	7	12.1	75	7
	MIP	75	58	12	28.4	205	15
	Total	241	198	91	83.4	551	107
2013	BMS	38	29	8	14.3	78	3
	CS	87	74	62	26.5	245	78
	ERHS	39	36	7	13.1	108	6
	MIP	76	59	13	28.5	214	13
	Total	240	198	90	82.4	645	100
2014	BMS	37	26	8	12.2	77	3
	CS	87	77	62	28.0	236	55
	ERHS	39	36	6	13.2	84	4
	MIP	78	60	13	28.8	216	28
	Total	241	199	89	82.2	613	90

Table A. Faculty research FTE and research productivity. Tenure-track or tenured faculty per department and research FTE were determined using CSU CVMBS Faculty Activity Survey (FAS) data. Faculty participation in Veterinary Medical (VM) teaching was extracted from annual curricular activity reports. Number of sponsored grants and value extracted from Annual Research Report issued by the CSU Office of the Vice President for Research. Peer-reviewed publications represents summation of publications from each calendar year as reported per faculty member on FAS. Duplications resulting from multiple CSU faculty authors per manuscript have been removed.

Appendix 10.2.a

	# faculty	0-10%	10-25%	25-50%	> 50%
BMS	37	8	3	11	15
CS	87	10	18	48	11
ERHS	39	4	10	12	13
MIP	78	18	15	11	34
Total	241	40	46	82	73

Table B. Faculty effort split over range of research FTE. Data assembled from annual faculty activity survey reports reflective of faculty FTE split among research, teaching, and service.



Appendix 10.2.a

Calendar Year	Dept	Extramurally sponsored federal grants		Extramurally sponsored state grants		Extramurally sponsored private contracts		Patents
		Number	Value	Number	Value	Number	Value	Number
2012	BMS	25	\$4,082,886	3	\$97,781	15	\$1,204,700	1
	CS	21	\$7,372,583	17	\$606,506	54	\$3,032,907	2
	ERHS	27	\$5,731,908	19	\$1,421,992	8	\$327,315	2
	MIP	107	\$23,808,970	25	\$2,510,142	40	\$8,233,036	1
	Total	180	\$40,996,347	64	\$4,636,421	117	\$12,797,958	6
2013	BMS	16	\$5,812,908	1	\$112,515	20	\$994,584	5
	CS	14	\$1,136,282	15	\$893,023	68	\$3,607,930	2
	ERHS	24	\$5,473,513	16	\$1,345,626	9	\$641,740	5
	MIP	80	\$19,934,548	23	\$2,290,702	35	\$4,613,622	1
	Total	134	\$32,357,251	55	\$4,641,866	132	\$9,847,876	13
2014	BMS	24	\$7,401,114	1	\$28,830	18	\$1,225,837	3
	CS	9	\$973,260	12	\$629,657	43	\$3,640,458	5
	ERHS	36	\$8,873,180	19	\$1,602,454	14	\$954,301	5
	MIP	85	\$20,218,175	25	\$2,875,385	44	\$7,853,098	3
	Total	154	\$37,465,729	57	\$5,136,326	119	\$13,673,694	16

Table C. Extramural funding. Research grants awarded to CVMBS faculty last three years by source. Grant dollars awarded and number of awards calculated per CVMBS fiscal year (July 1-June 30) from CSU Office of Sponsored Programs Research Services Database. Patent data provided by CSU Ventures.



Appendix 10.2.b

Attribute	2012	2013	2014
Extramural grant \$	\$58,430,726	\$46,856,993	\$56,275,749
Intramural grant \$	\$758,620	\$733,750	\$760,312
Manuscripts published	551	645	613
Abstracts presented at national meetings	571	589	541
Speaking invitations	222	155	187
Study sections, national advisory councils, advisory boards	313	302	356
MS degrees awarded	110	125	144
PhD degrees awarded	31	23	23
MS continuing degrees	235	194	195
PhD continuing degrees	131	120	122

Table A. Research accomplishments of CVMBS faculty last three years. Grant dollars awarded and number of awards calculated per CVMBS fiscal year (July 1-June 30) from CSU Office of Sponsored Programs Research Services Database and are equivalent to Appendix 10.2.a Table C. Other attributes calculated on calendar year from FAS. Degrees granted include Fall 2014 graduates, and numbers were provided by CSU Institutional Research.



Appendix 10.3

Year	Number of students in funded and unfunded research projects	Number of peer-reviewed publications in which DVM students are authors/co-authors	Number of DVM students in a joint DVM/graduate academic program	
			PhD (or equivalent)	Master's (or Equivalent)
2010	41	39	16	24
2011	51	35	15	22
2012	43	37	16	22
2013	53	48	15	20
2014	58	52	15	20

Table A. DVM student research accomplishments last five years. Number of students participating in research determined by searching DVM student presentations in CVMBS Research Day Proceedings, and adding additional VSSP and DVM/PhD students. Publications listed by faculty in FAS were searched for authors that matched the names of veterinary students in funded/unfunded research. Master's students include DVM/MBA and DVM/MPH program participants.



Appendix 10.3.a

Table A: VM 603 Foundations of Veterinary Medicine lecturers (2012-2014, *lectured multiple years)

External Lecturers

Dale Baker, DVM, PhD, ACVP, ABT, IATP, Baker Toxicology/Pathology Consulting

Diane Brown, DVM, PhD, DACVCP, assistant professor, pathology; Harvard Medical School director; assistant pathologist, Department of Pathology, Massachusetts General Hospital

Danielle Buttke, DVM, PhD, MPH, DACVPM, One Health coordinator, Division of Wildlife Health Branch and Office of Public Health, National Park Service

Joseph DeSimone, Distinguished Professor, chemical engineering, North Carolina State University; Chancellor's Eminent Professor, chemistry, University of North Carolina

Sindura Ganapathi, BVSc & AH (DVM), MBA, PhD, program officer, Global Health, Discovery, and Translational Sciences Program, Bill and Melinda Gates Foundation

Tony Goldberg, DVM, PhD, Vilas Distinguished Achievement Professor, professor of epidemiology, School of Veterinary Medicine; director for research, UW-Madison Global Health Institute

David Haworth*, DVM, PhD, president and CEO, Morris Animal Foundation

Whitney Miller, DVM, MBA, assistant director, AVMA Governmental Relations Division

Todd O'Hara*, DVM, PhD, professor, Institute for Arctic Biology, University of Alaska Fairbanks (UAF)

Patty Olson, DVM, PhD, DACT, chief veterinary adviser, American Humane Association

Jenny Powers, wildlife health veterinarian, National Park Service

G. Sylvester Price, DVM, PhD, DACVIM, research adviser, Technology Acquisitions, Elanco Animal Health

Jane A. Rooney, DVM, assistant director, One Health Coordination Center Surveillance, USDA, APHIS

Matthew Rosenbaum, DVM, MS, DACLAM, director, Animal Care Facility, National Jewish Health, Denver

Christina Sigurdson, DVM, PhD, associate professor, department of Pathology, UC San Diego

Internal Lecturers

Anne Avery, DVM, PhD, associate professor, Microbiology, Immunology and Pathology (MIP)

Winona Burgess, DVM, comparative lab/animal resident; MS candidate

Gregg A. Dean, DVM, PhD, DACVP, professor, department head, MIP

Steve Dow*, DVM, PhD, DACVIM, director, Center for Immune and Regenerative Medicine; professor, Clinical Sciences (CS)

Nicole Ehrhart*, VMD, MS, DACVS, professor, surgical oncology director, Laboratory of Comparative Musculoskeletal Oncology, CS

Amanda Guth, DVM, PhD, research scientist, CS

Edward Hoover, DVM, PhD, University Distinguished Professor, MIP

Michael Lappin*, DVM, PhD, DACVIM, director, Center for Companion Animal Studies; professor, CS

Candace Mathiason*, PhD, assistant professor, MIP

Wayne McIlwraith*, BVSc, PhD, DSc, FRCVS, DACVS, DACVSMR, University Distinguished Professor, CS

Christine Olver, DVM, PhD, DACVCP, associate professor, MIP

Kristy Pabilonia*, DVM, PhD, associate professor, MIP; coordinator, Colorado Poultry Health Board

Rodney Page, DVM, PhD, director, Robert H. and Mary G. Flint Animal Cancer Center; professor, CS

Brendan Podell, DVM, anatomic pathology resident; PhD candidate

Sue VandeWoude*, DVM, DACLAM, CVMBS associate dean for research

Tracy Webb*, DVM, PhD, research scientist, CS

Amanda Rauhauser, third-year DVM student

Lily Ngai, second-year DVM student

Justin Lee, PhD, 2015 DVM/PhD candidate



Appendix 10.3.a

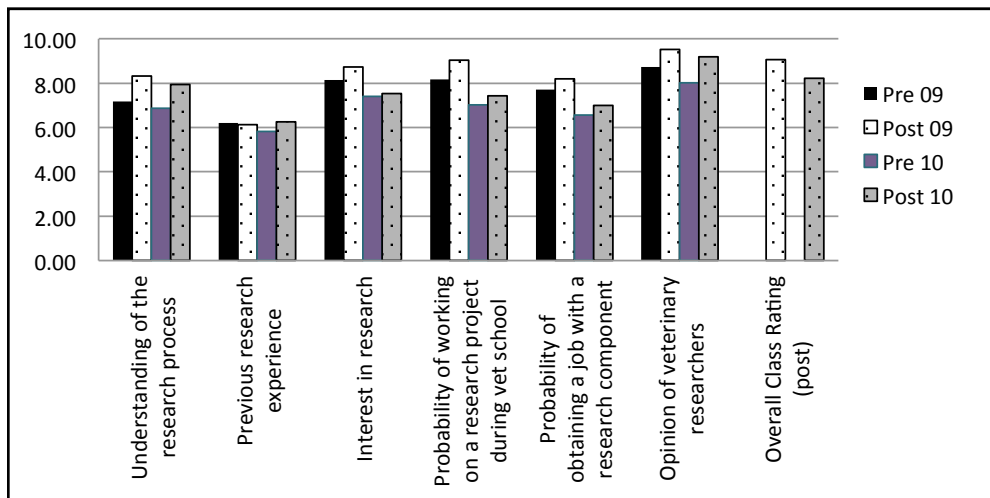


Figure 1. VM603 pre- and post-course surveys as described in 12.10.3a (Page 39) assessing a variety of attributes on a 10-point scale (10=highest). All measures were increased from start to finish in 2009 and 2010. Similar findings have been compiled for subsequent years (data not shown).

Appendix 10.3.a

Scientific writing includes abstract construction, compilation of experimental results as a report, etc.

	Evaluation of scientific literature	Research design	Critical analysis of data	Scientific writing	Perform research	Interact with graduate students
Practicum instructors indicating use of this measure (n=15)	14	5	11	3	4	8
Didactic instructors indicating use of this measure (n=24)	11	1	9	2	1	2
Total using this measure	25	6	20	5	5	10
% of respondents	68%	16%	54%	14%	14%	27%

Table B. DVM instructor use of research-related pedagogy in delivery of practicum rotations and courses. Less than 5% indicated that writing research proposals or submitting manuscripts were performed as a component of the curriculum. Scientific writing includes abstract construction, compilation of experimental results as a report, etc.



Appendix 10.3.b

Funding Source	Funded positions		
	2012	2013	2014
Merial ¹	8	9	9
NIH-DPCPSI-ORIP T35	0	6	7
Morris Animal Foundation	1	1	1
American Humane Association	2	2	2
ASLAP Foundation ¹	2	2	2
USDA ²	2 (partial)	3	2
Equine Commission	0	1	1
CVMBS RDSVS exchange	1	1	1
CVMBS UAF exchange	0	1	2
AVMA-AVMF	n/a	n/a	1
Other		2	5
Total ³	16	28	33

Table A. Funding sources for CSU Veterinary Summer Student Scholars, 2012-14. ¹CSU 50% cost share for Merial and ASLAP fellow positions. ²USDA Animal Health and Disease funds. ³Does not include students participating abroad in Merial Europe programs that received CSU supplemental funds.

Appendix 10.3.b

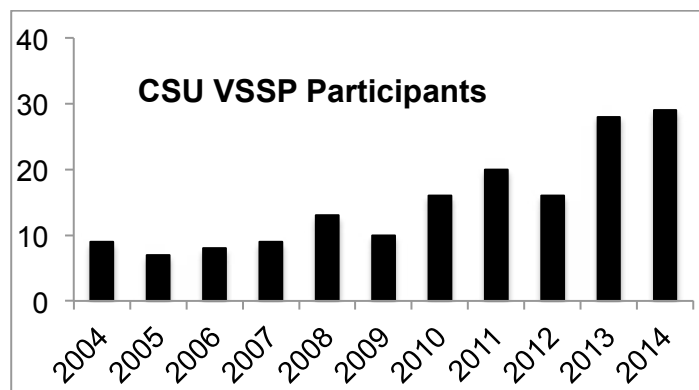


Figure 2. Veterinary Summer Scholars participating in structured CSU summer research activities, 2004-14. Mean = 16.5; total 1995-2014=259



Appendix 10.3.b

Graduating Class Year	Class Size	VSSP	DVM Grants	Research Day	DVM/PhD	% of class
2008	133	9	2	22	1	17%
2009	135	6	13	23	0	17%
2010	134	12	12	24	0	18%
2011	134	10	14	26	2	19%
2012	133	8	19	28	1	21%
2013	138	14	21	38	3	28%
2014	139	11	25	39	3	28%
DVM students that have 1, 2, or 3 years left in the DVM Program (classes of 2015, 2016, 2017):						
2015*	138	16	12	29	1	21%
2016*	138	26	2	35	1	25%
2017*	138	11	1	19	6	13%

Table B. Percentage of DVM students participating in research has increased from less than 17% to nearly 30% from 2008-present. Students participating in the CSU Veterinary Summer Scholars program (described in 12.10.3b, Page 40); DVM Grants program, as presenters at CVMBS Research Day; or in the DVM/PhD combined program have increased from 2008-present. Students who have not completed the veterinary program are indicated by (*); we anticipate the % participants in these years will increase prior to graduation. Percent participation represents number of students participating as a percentage of total class size.



Appendix 10.3.d

Program/Organization/Participants	Description
Local Seminar Opportunities/Guest Lecturers	
CSU Veterinary Summer Scholar Program; predoctoral veterinary students http://csu-cvmb.colostate.edu/dvm-program/Pages/Veterinary-Scholars-Program.aspx	10 weekly seminars on research-related topics including grantsmanship, abstract/manuscript writing, responsible conduct of research, and various research topics
CVMB Distinguished Lecturer	Internationally known speaker on topic of relevance to CVMB; once/year
Student organizations including SCAVMA, Wildlife Disease Association, One Health Club http://csu-cvmb.colostate.edu/dvm-program/Pages/DVM-Organizations.aspx	Approximately 10 seminars/semester presented by internal/external guest speakers
CVMB Departmental Seminars	Approximately three seminars/week each semester on discipline-specific topics in cardiology, infectious disease, reproductive physiology, radiology, etc.
Student Presentations/Research Events	
CVMB Research Day http://csu-cvmb.colostate.edu/research/Pages/research-day.aspx	Annual half-day meeting each January, featuring approximately 140 CVMB student oral and poster presentations
VSSP Poster Presentation http://csu-cvmb.colostate.edu/dvm-program/Pages/Veterinary-Scholars-Program.aspx	Poster session featuring work of veterinary students at end of July
National Veterinary Student Scholar Symposium	National meeting sponsored by Merial and NIH in August. Approximately 20 students attend/year. CSU hosted more than 600 participants in 2012.
National SCAVMA convention https://www.avma.org/about/savma/events/pages/default.aspx	National student AVMA meeting featuring platform and poster sessions. CSU hosted in 2014.

Table A. Partial list of seminar and research symposium events with CSU DVM participation.



Appendix 11.1.a

Table A – NAVLE

Year	Students taking exam(s)	Students passing exam(s)	Average scores
2014*	137	129	500
2013	141	138	526
2012	129	125	522
2011	132	129	547
2010	132	130	555
2009	127	124	536
2008	136	131	516

*NAVLE ultimate performance pass rates have consistently ranged from 96% to 98%, with CSU historically rating higher than national averages. However, the class of 2014 demonstrated less success (CSU, 94%; national average, 95%). Upon close examination, it was revealed that only half of the lowest quartile of this class passed their first attempt. Previous data shows this to be anomalous (first-attempt pass rates have consistently remained in the 90 percentile range; 2014 passed at 85% due to the lowest quartile of students). To determine the significance of this, first-take data from the class of 2015 (available February 2015) will be examined. Until those data are available, monitoring of admission, curricular, and other programmatic factors that may have affected this are being reviewed; no remarkable programmatic changes or variations in trends have become apparent.

Appendix 11.1.b

Table B - Attrition

Entering Class	Attrition*	Reason for Relative Attrition			Absolute Attrition**	
		Academic Failure	Additional Program	Personal	Number	Percentage
2014	1	1	0	0	0	0/138 = 0.000%
2013	3	1	0	0	2	2/138 = 1.449%
2012	11	1	2	3	5	5/139 = 3.597%
2011***	13	3	3	1	6	6/138 = 4.348%
2010	7	1	2	1	3****	3/139 = 2.158%
2009	3	2	1	0	0	0/138 = 0.000%
2008	11	1	2	2	3	3/134 = 2.238%

*Students who are either withdrawing from the program or moving to a different (earlier) class

**Students who leave and never return

*** Highest absolute attrition rate in 10 years at 4.35%; this was due to 1 transfer, 2 academic dismissals, and 3 withdrawals. This class additionally had 3 students who left the class in order to enter the DVM/PhD combined program, 3 joining the class of 2012 due to academic dismissal and subsequent readmission, and 1 approved leave of absence for personal reasons.

****1 deceased



Appendix 11.1.d Table C – Employment

Graduating Class	#Graduates Who Received Employment or Advanced Training Offers/ #Completing This Question, and (%)	Mean # Employment or Advanced Training Offers Received
2014 (n = 119)	101, n = 116 (87.1%)	1.80
2013 (n = 112)	89, n = 106 (84.0%)	1.70
2012* (n = 101)	52, n= 97 (53.6%)	1.70
2011 (n = 118)	93, n = 114 (81.6%)	1.62
2010 (n = 97)	71, n = 92 (77.2%)	1.68

* AVMA altered the wording of this survey question, and lower offer rates were seen at other institutions; starting salaries were also down nationally in 2012.



Appendix 11 >> OUTCOMES ASSESSMENT

Appendix 11.1.e Senior student preparedness across competencies, rated by the students themselves, alumni and faculty; a scale of 1 to 7 was used.

	Graduating seniors						Alumni						Faculty	
	2011			2014			2012			2013			2014	
	Mean	Median		Mean	Median		Mean	Median		Mean	Median		Mean	Median
Competency areas:														
Problem-solving skills (clinical reasoning)	5.52	6		4.78	5		5.47	6		5.65	6		5.47	6
Interpretation of clinical laboratory tests	5.75	6		4.96	5		5.85	6		5.83	6		5.41	6
Records management	5.3	6		3.96	4		5.11	5		5.5	6		5.46	6
Comprehensive treatment planning	5.21	5		4.03	4		4.95	5		5.15	5		5.22	5
Anesthesia	6	6		4.81	5		6	6		6.1	6		5.31	5
Pain management	5.63	6		4.8	5		5.93	6		5.9	6		5.31	5
Patient welfare	5.79	6		5.41	5		5.93	6		5.7	6		6.05	6
Basic surgery skills, experience, and case management	4.54	5		4.59	5		4.13	4		4	4		5.02	5
Basic medicine skills, experience, and case management	5.18	5		4.52	5		4.95	5		4.83	5		5.37	5
Emergency and intensive care case management	4.71	5		3.46	4		4.39	5		4.4	5		5.55	6
Health promotion (preventive care)	5.37	6		4.76	5		5.27	5		5.5	6		5.56	6
Disease prevention/biosecurity	5.3	6		4.87	5		5.22	5		5.33	5		5.38	6
Zoonosis	5.25	5		4.75	5		5.11	5		5.23	5		5.25	5
Food safety	4.56	5		4.31	4		4.37	4		4.33	4		5.08	5
Client communications	5.75	6		5.52	6		5.98	6		5.98	6		5.78	6
Ethical conduct	5.59	6		5.77	6		5.58	6		5.83	6		6.41	7
Critical analysis of new information and research findings relevant to veterinary medicine	4.9	5		4.57	5		5.11	6		4.83	5		5.22	5



Appendix 11.1.g

2014 Faculty Perception Survey Results (N=98, 40% response rate)

Clinical resources, facilities, and equipment:		adequate, very good or excellent (excluding N/A) in % of faculty responding
Main Campus		
Lecture Hall		84%
Small lecture rooms and small classrooms		76%
Lab spaces		79%
Equipment for teaching		81%
James L. Voss Veterinary Teaching Hospital (VTH)		
Lecture Hall		78%
Small lecture rooms and small classrooms		73%
Lab spaces		67%
Equipment for teaching		69%
Clinical rounds room		62%
Library and Information Resources		
Access to print journals, books, and other information sources at VTH Library		98%
Access to print journals		100%
Access to online journals and other information sources		100%
Quality of support for using information resources in teaching efforts		94%
Caseload		
VTH Small Animal Caseload		97%
VTH Equine Caseload		92%
VTH Livestock Caseload		77%
Field Service Equine Caseload		89%
VTH Field Service Livestock Caseload		81%
VTH as an overall clinical learning environment		96%
Student Preparedness		
Incoming freshmen		95%
Beginning of second year		98%
Beginning of third year		96%
Beginning of senior year		94%
End of senior year		97%



Appendix 11.1.g

Areas of Concern Identified	Responses
Small and overcrowded rounds rooms that lack teaching equipment; need for more electrical outlets and updated technology in certain locations, with some concerns over exceeding current capacity	Planned VTH renovations will address these issues, including the creation of larger, updated rounds rooms.
Need for more livestock and nondomestic animal exposure	Livestock Medicine and Population Health Section is enacting an additional field service emphasizing hobby farms and beef cattle; additional information in Standard 12.9.4.
Balance needed between invested teaching of DVM students and the pressure of caseloads due to revenue-driven VTH operations	In the last 12 months, each clinical service was tasked with identifying optimal teaching caseload. Once established, hospital administration and clinical faculty are working together to support caseload that exceeds teaching capacity. Small-animal orthopaedic surgery serves as an example; with two services, a teaching service and an “overflow” service. Optimal cases for DVM education can be preferentially diverted to the teaching service, while the overflow service ensures that all cases are efficiently managed and that client needs are met. Further, additional technical staff have been hired to relieve students of selective patient care duties. The planned VTH renovation will provide more efficient use of space and improved work flow.
Best Aspects Identified	
Newly renovated anatomy student space (the Cubes, laboratory space), IT and classroom support, and the upgrades/renovations that are continually occurring. The overwhelming majority of respondents noted the patient diversity and increasing case volume as the primary best aspect of the VTH clinical resources for teaching. The array of specialty services, along with excellent faculty and staff, were also cited. Many commented positively on the variety of cases and learning opportunities for students.	

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